The
# JOURNAL
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OSTEOPATHIC ASSOCIATION

Aug. 1959 / Presidential Address
*Yearly Index to The Journal*

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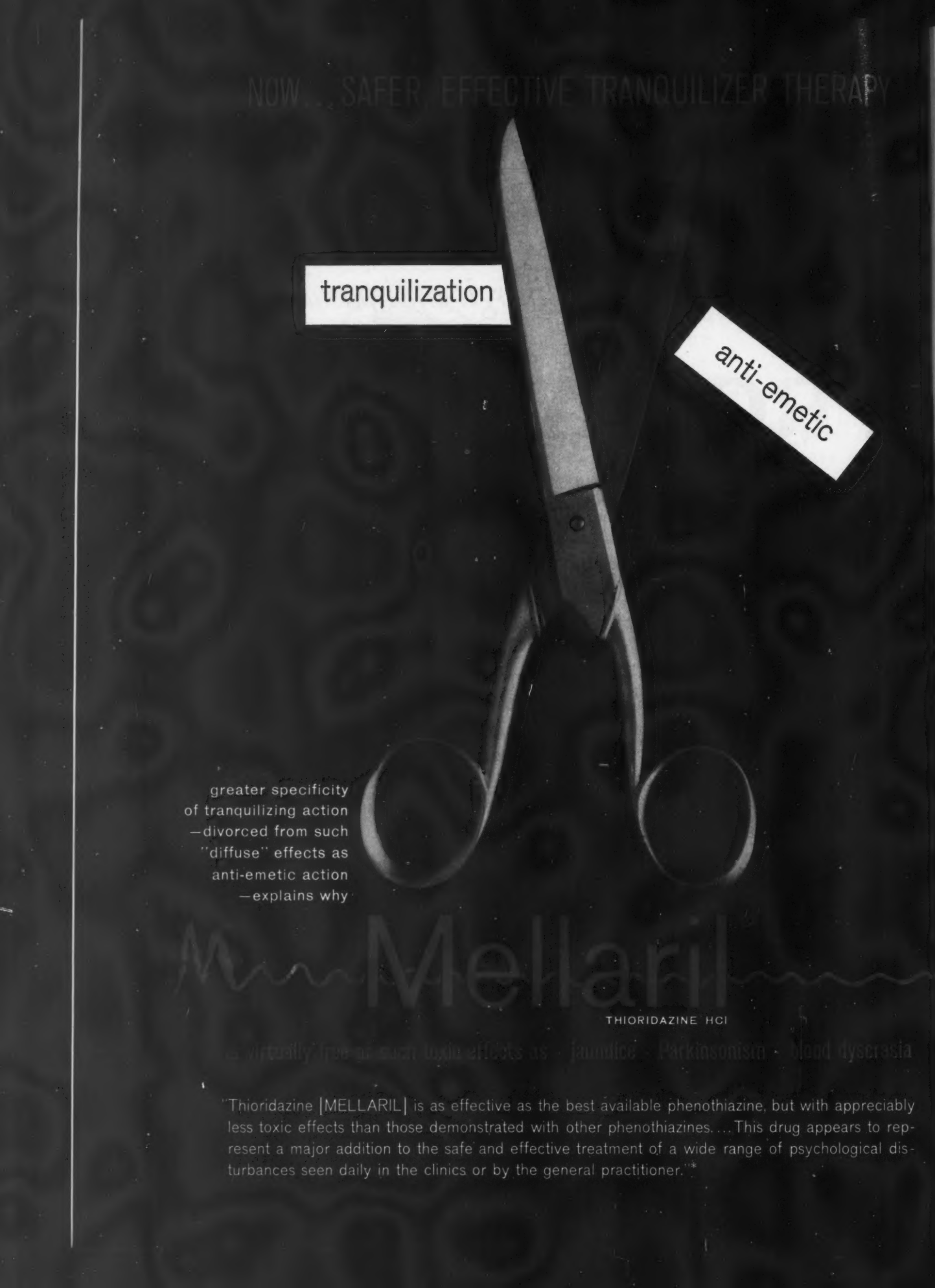
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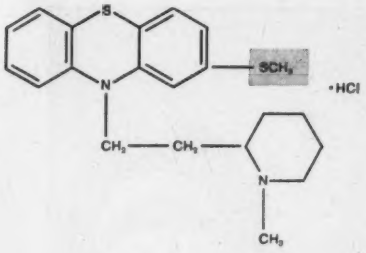


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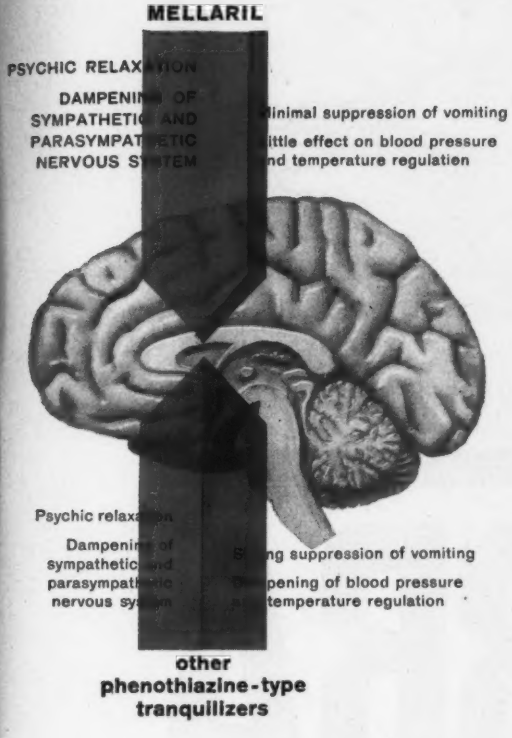


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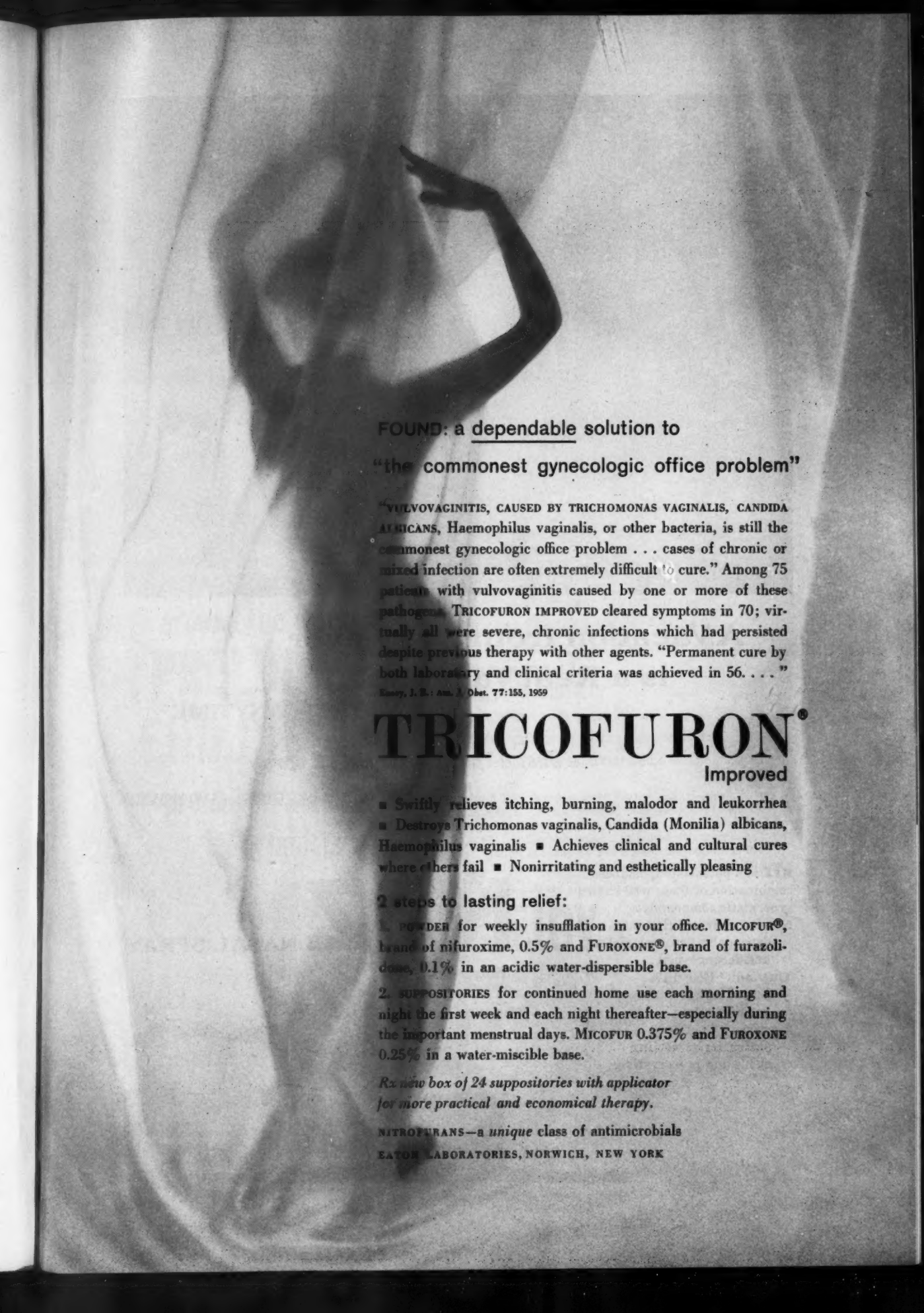

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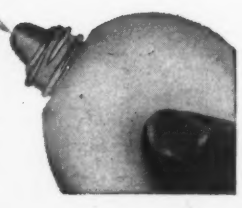

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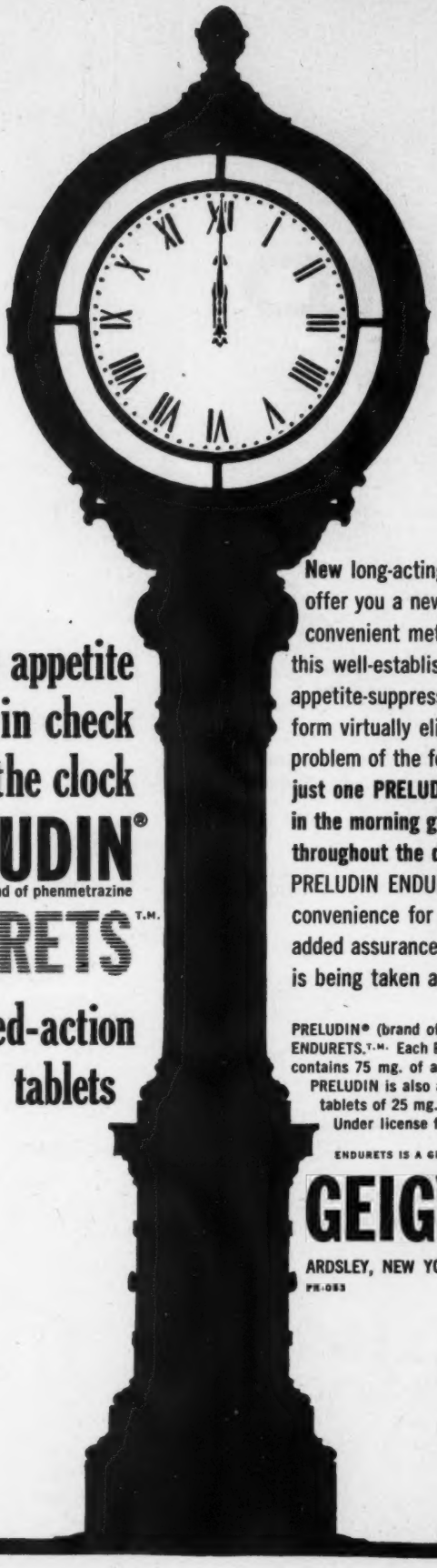

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## Background of NIAMID

A major advance in the treatment of mental depression came with a newer understanding of the influence of brain serotonin and norepinephrine on the mood. Levels of both these neuro-hormones are decreased in animals under experimental conditions analogous to depression; relief of these model depressions is seen with a rise in the levels of both serotonin and norepinephrine.

A second advance came with the development of monoamine oxidase inhibitors, substances which raise the cerebral level of both serotonin and norepinephrine. The first of the amine oxidase inhibitors raised the cerebral level of serotonin, but did not appear to raise that of norepinephrine levels proportionately.

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## Precautions

Side effects are most often minor and mild manifestations of central nervous system stimulation, modifiable by reduction in dosage; these may take the form of restlessness, insomnia, headache, weakness, vertigo, dry mouth, and perspiration. Care should be taken when NIAMID is used with chlorothiazide compounds, since hypotensive effects have been noted in some patients receiving combined therapy—even though hypotension has rarely been noted with NIAMID alone. There has been no evidence of liver damage in patients on NIAMID; however, in patients who have any history of liver disease, the possibility of hepatic reactions should be kept in mind.

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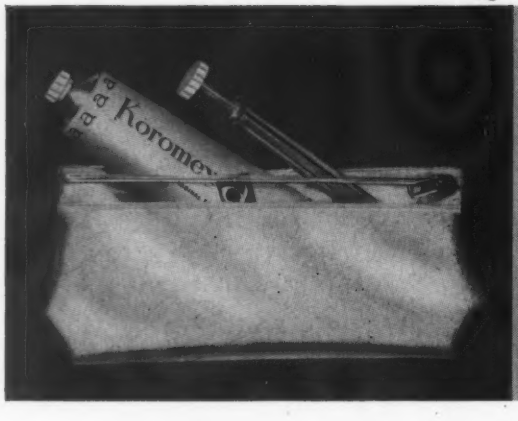

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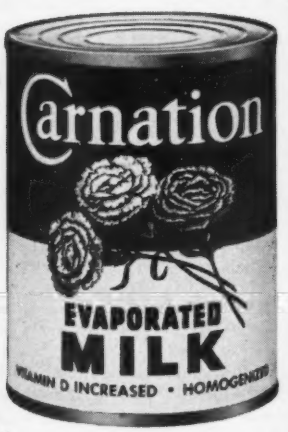
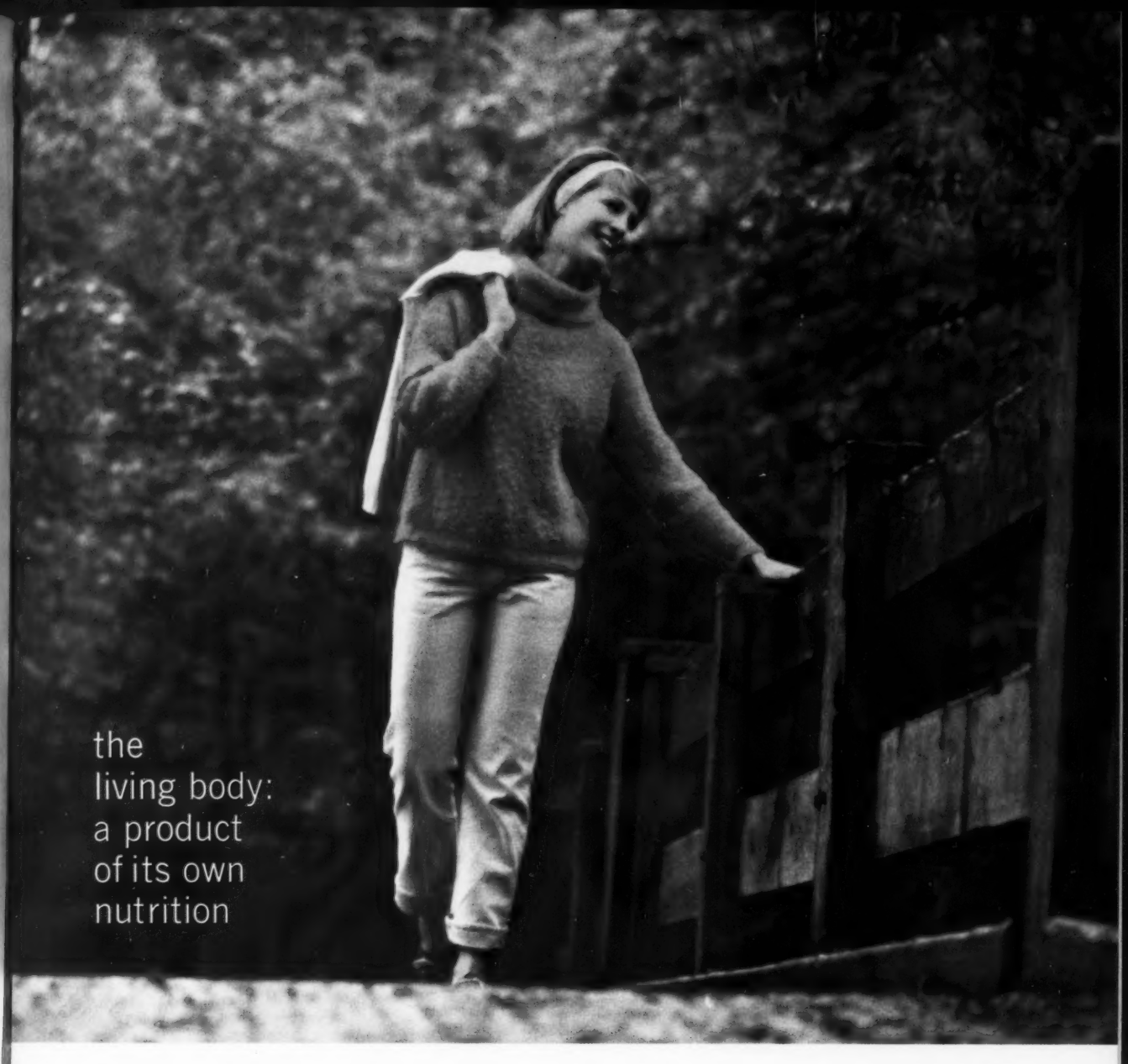
## 1 NEW! CARNALAC

...when maximum convenience is desired. New Carnalac is Carnation Evaporated Milk with carbohydrate and Vitamin D added. Diluted 1:1, it provides the typical Carnation Evaporated Milk formula as usually prepared at home.

## 2 CARNATION EVAPORATED MILK

...when maximum formula flexibility is desirable for the baby... or when maximum economy is necessary for young parents.






908035

whatever the age, whatever the need—

# VITAMINS BY ABBOTT

help make "good health" a "good habit"

filmtab **DAYALETS®** (Abbott's Multiple Vitamin Tablets): filmtab **DAYALETS-M®** (Abbott's Vitamin-Mineral Tablets): two extra-potent maintenance formulas—ideal for the "run-down" patient or as prophylaxis for those on a restricted diet.

filmtab **OPTILETS®** (Abbott's Therapeutic Multivitamin Formula): filmtab **OPTILETS-M®** (Abbott's Therapeutic Multivitamins plus Minerals): therapeutic formulas for the more severe deficiencies—excellent for use when bodily stresses and requirements are increased, as in periods of illness or infection.

filmtab **SUR-BEX® with C** (Abbott's B-complex with C): the complete B-complex formula with a therapeutic amount of ascorbic acid...especially useful during such periods as postoperative recovery.

. . . and it's nice to have them all in table bottles, too (at no extra cost). **In the golden table bottle:** Sur-bex w/C, 60's (shown); Dayalets, Optilets and Optilets-M, 100's. **In "apothecary" table bottles:** Dayalets-M, 100 & 250.

ABBOTT

# end of the line...Abbott style

By the time these handsome bottles of Dayalets come off the line at Abbott, you can count no less than 25 separate assaying and inspection procedures—including a tablet-by-tablet check by hand! You can also include some refinements of manufacture that you don't ordinarily find in a nutritional product.

An example of these is our exclusive Filmtab® coating process. Several things distinguish it from other coating operations. For one, it is an anhydrous procedure—which helps materially to reduce deterioration. For another, the coating itself is microscopically thin—which helps to reduce bulk. There is no sugar in the Filmtab coating, and the final "seal" is perfect—no vitamin odor or taste, ever. The result to you is a compact, calorie-free tablet of unsurpassed stability . . . which any patient can swallow easily . . . and which won't stick or chip in the bottle.

®FILMTAB—FILM-SEALED TABLETS, ABBOTT; U.S. PAT. NO. 2,881,085
© 1959, ABBOTT LABORATORIES/NORTH CHICAGO, ILL. 908036

VITAMINS
BY
ABBOTT
A PRODUCT
FOR EVERY
PATIENT
FOR EVERY
PURPOSE

Novahistine works better than antihistamines alone

**Stuffy, runny noses...swollen, weepy eyes** are more effectively relieved with Novahistine. The distinctly additive action of the vasoconstrictor and antihistamine combined in Novahistine relieves allergic symptoms more effectively than either drug alone.

**one dose of 2 tablets** for day-long or night-long relief. Each long-acting tablet contains Phenylephrine HCl 20 mg. and Chlorprophenpyridamine maleate 4 mg. Bottles of 50 and 250 green, film-coated tablets.

PITMAN-MOORE COMPANY Division of Allied Laboratories, Inc., Indianapolis 6, Indiana

Novahistine LP* LONG-ACTING

*Trademark

# NEW

1 mg. Tablets

# STELAZINE*

brand of trifluoperazine

For b.i.d. administration

## FOR ANXIETY–
## PARTICULARLY WHEN EXPRESSED AS APATHY, LISTLESSNESS AND EMOTIONAL FATIGUE

5 SIGNIFICANT ADVANTAGES

*

often effective where other agents fail

*

enthusiastic patient acceptance

*

fast therapeutic response with very low oral doses

*

convenient b.i.d. administration

*

side effects usually slight and transitory

*Trademark

*Clinically evaluated, before introduction, in over 12,000 patients*

SMITH
KLINE &
FRENCH

## UNUSUALLY EFFECTIVE IN RELIEVING ANXIETY IN APATHETIC, EMOTIONALLY FATIGUED PATIENTS

'Stelazine' is a new long-acting psychotherapeutic agent that can help you to bring prompt relief to many of your patients whose anxiety is expressed as apathy, listlessness and emotional fatigue.

Clinical studies in over 12,000 patients have shown that 'Stelazine' is outstanding among agents in its class because it not only relieves agitation and tension, but also *restores normal drive* in many patients who are apathetic due to anxiety.

These studies have also shown that 'Stelazine' is effective in low b.i.d. dosage (2 to 4 mg. daily) and that it is often effective in patients who have failed to respond to meprobamate, prochlorperazine, phenobarbital, mepazine, chlorpromazine, or promazine.

## RECOVERY OF NORMAL DRIVE IN APATHETIC PATIENTS

Clinicians report that with 'Stelazine' most apathetic, listless and emotionally fatigued patients regain an alert, more confident outlook. This frequently results in increased mental and physical activity. For example:

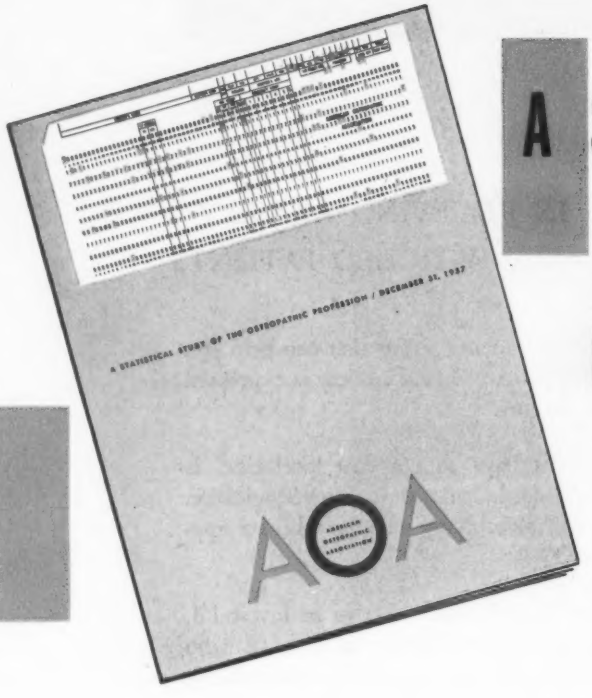
> Patients' "spirits brightened and initiative and interest picked up considerably in contrast to their pretreatment inertia."[1]
>
> 'Stelazine' "seemed to have a capacity to restore normal drive in conditions characterized by decreased motor activity and mental apathy."[2]

ADDITIONAL INFORMATION will reach you by mail or through your S.K.F. representative. We hope you'll decide that 'Stelazine' deserves an early trial. Smith Kline & French Laboratories, Philadelphia.

*REFERENCES:* 1. Gearren, J.B.: Dis. Nerv. System *20*:66 (Feb.) 1959. 2. Margolis, E.J., et al.: Scientific Exhibit at 12th Clinical Meeting of the American Medical Association, Minneapolis, Dec. 2-5, 1958. 3. Phillips, F.J., and Shoemaker, D.M.: *ibid.* 4. Ayd, F.J., Jr.: Clin. Med. *6*:387 (Mar.) 1959. 5. Tedeschi, D.H., et al.: in *Trifluoperazine: Clinical and Pharmacological Aspects*, Philadelphia, Lea & Febiger, 1958, pp. 23-33.

*leaders in psychopharmacology*

SMITH
KLINE &
FRENCH




# A STATISTICAL STUDY OF THE OSTEOPATHIC PROFESSION

"A Statistical Study of the Osteopathic Profession-December 31, 1957."

Published by the American Osteopathic Association, November 1, 1958.

An attractive 40-page booklet in color, illustrated with tables and charts.

The first complete study of osteopathic physicians and surgeons pertaining to distribution by geographic location and population of practice community, licensure, type of practice, activity if not in practice, preprofessional college and earned degrees, internships, and residencies, age distribution, number of new graduates and number of deaths by year, etc.

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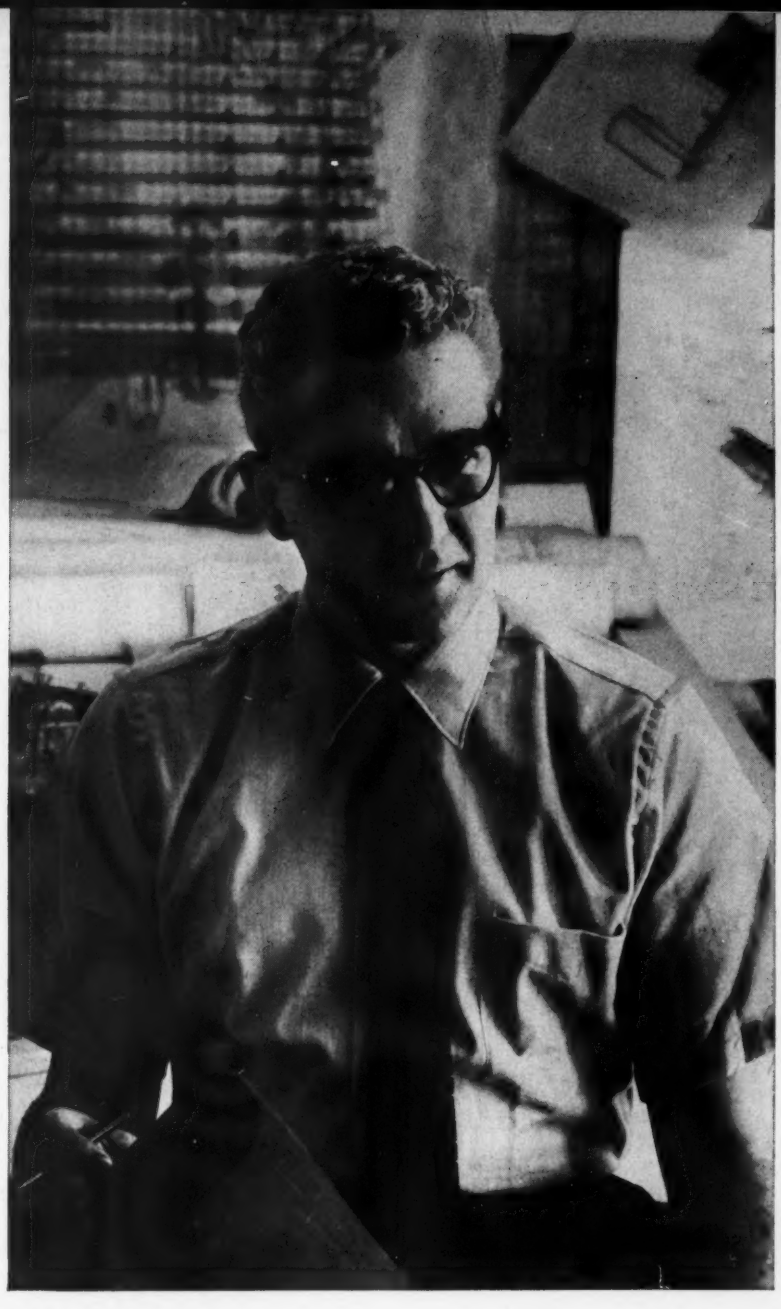
**A STATISTICAL STUDY OF THE OSTEOPATHIC PROFESSION**

**American Osteopathic Association**

**212 E. Ohio St., Chicago 11, Illinois**



**no asthma symptoms**—One Tedral tablet, taken at the *first* sign of attack, helps most chronic asthma patients breathe normally and live actively... stay free of bronchospasm, mucous congestion and apprehension. For especially frequent or severe attacks, prescribe 1 or 2 Tedral tablets every 4 hours plus an additional tablet at the first sign of symptomatic break-through. Tedral is available in *five* convenient dosage forms.

*Formula:* theophylline, 130 mg., (2 gr.); ephedrine HCl, 24 mg., (3/8 gr.); phenobarbital, 8 mg., (1/8 gr.).

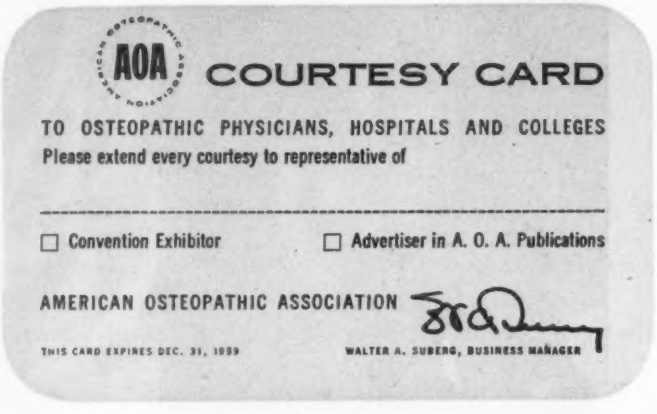
# TEDRAL®

*the dependable antiasthmatic*

WARNER CHILCOTT

MORRIS PLAINS, N.J.

# REMEMBER THE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COURTESY CARD
TO OSTEOPATHIC PHYSICIANS, HOSPITALS AND COLLEGES
Please extend every courtesy to representative of
Convention Exhibitor
Advertiser in A. O. A. Publications
AMERICAN OSTEOPATHIC ASSOCIATION
THIS CARD EXPIRES DEC. 31, 1959
WALTER A. SUBERG, BUSINESS MANAGER

*Extend Every Courtesy To Your Detail Man*

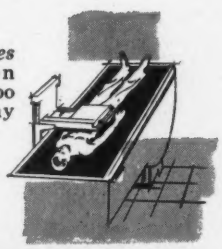
SUSAN, THE TECHNICIAN TELLS HOW:

"Patrician's comfort and simplicity please everyone"

"Our radiologist likes the *Patrician* for fluoroscopy. Traded his old unit... got rid of tiresome tussles with an awkward fluoroscopic screen."

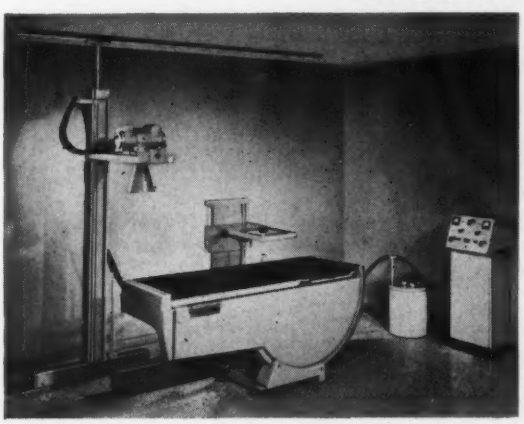
*"Poor Mrs. Smith had tremors — no problem for me, though.* The Patrician '200' is built for split-second radiography that really 'stops' motion."

*"Miss Jones says she 'feels faint' — I'm glad to know the Patrician handles easily.* Switches quickly from fluoroscopy to radiography... minimizes examination time for high-strung patients."



*"Tall Johnny stretches comfortably.* Even 6½ footers are not too big for this roomy 81" table."

• Ask your G-E x-ray representative for full details on Patrician's big-table convenience. Or clip this coupon for a copy of *new* illustrated catalog.



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**X-RAY DEPARTMENT**
**GENERAL ELECTRIC CO.**
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- ☐ New 8-page PATRICIAN bulletin
- ☐ Facts about deferred payment
- ☐ MAXISERVICE® all-inclusive rental plan

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Address.....

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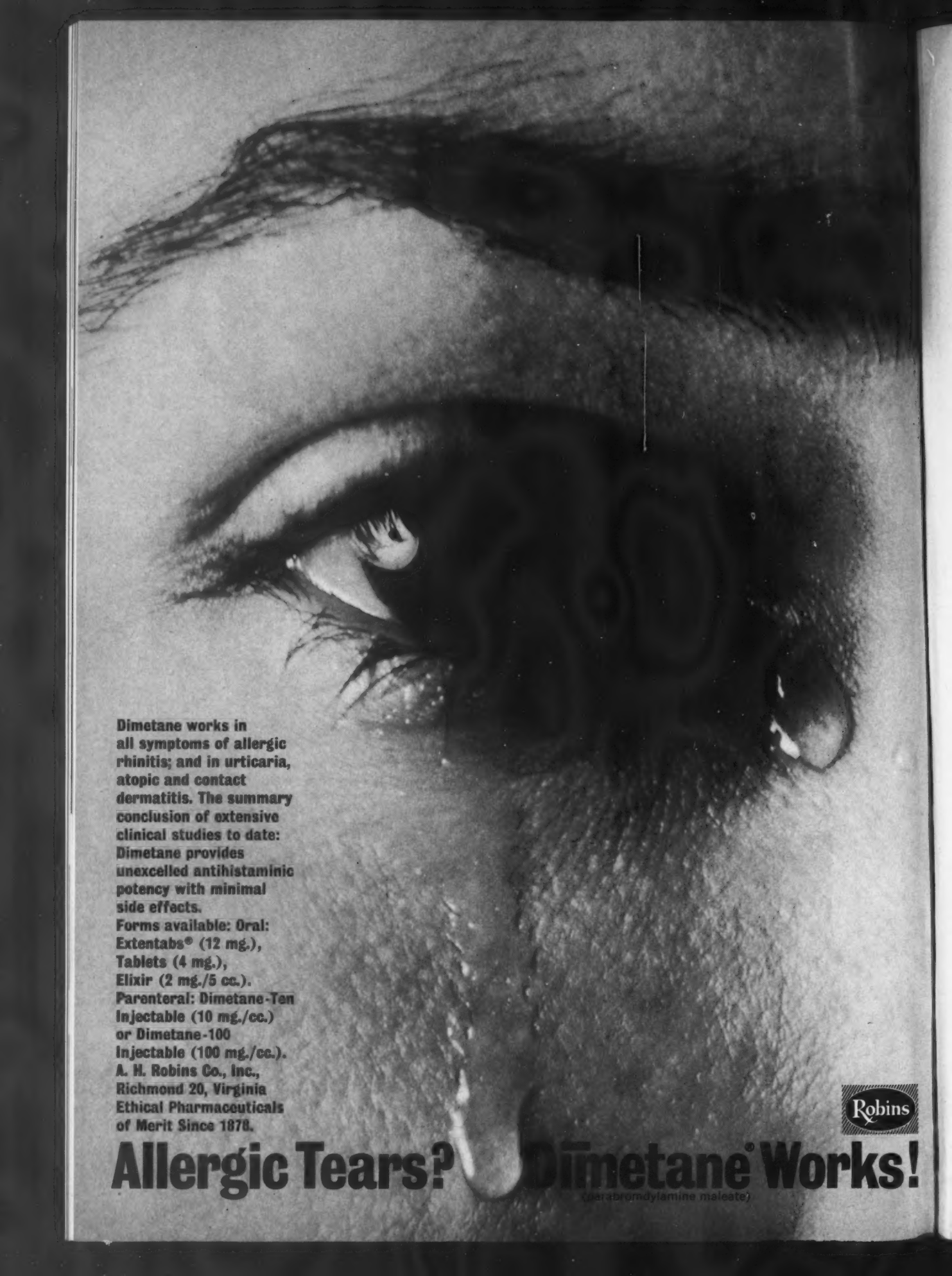


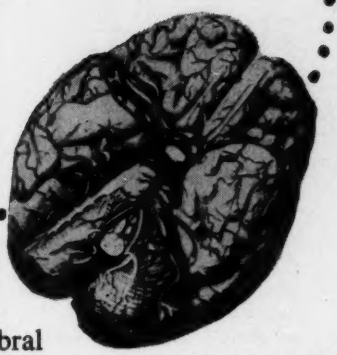
Dimetane works in all symptoms of allergic rhinitis; and in urticaria, atopic and contact dermatitis. The summary conclusion of extensive clinical studies to date: Dimetane provides unexcelled antihistaminic potency with minimal side effects.
Forms available: Oral: Extentabs® (12 mg.), Tablets (4 mg.), Elixir (2 mg./5 cc.). Parenteral: Dimetane-Ten Injectable (10 mg./cc.) or Dimetane-100 Injectable (100 mg./cc.).
A. H. Robins Co., Inc., Richmond 20, Virginia
Ethical Pharmaceuticals of Merit Since 1878.

Robins

# Allergic Tears? Dimetane® Works!

(parabromdylamine maleate)

# CEREBRAL ARTERIOSCLEROSIS



Nursing homes are overcrowded with elderly patients suffering from cerebral arteriosclerosis. In many cases, "strokes" resulting from cerebral hemorrhage or thrombosis are disabling complications.

In this field of neurology and psychiatry, excellent results are obtained with Iodo-Niacin Tablets (potassium iodide 135 mg. and niacinamide hydroiodide 25 mg.). *Iodo-Niacin permits long continued use of iodide medication without iodism.*

Feinblatt, Feinblatt and Ferguson[1] treated 59 elderly patients suffering from arteriosclerosis with Iodo-Niacin Tablets for over a year. Dizziness was relieved in 71% of cases, vague abdominal distress in 87%, chronic headaches in 61%, and disorientation in 50%. *There was not a single case of iodism in this series.*

The recommended dosage is 2 tablets three times daily, to be continued as long as needed. Iodo-Niacin is supplied in bottles of 100 tablets, slosol-coated pink, also in ampuls.

**IODO-NIACIN*** IODIDE THERAPY WITHOUT IODISM

[1]Feinblatt, T. M., Feinblatt, H. M. and Ferguson, E. A., *Am. J. Digest. Dis.* 22:5, 1955.

*U.S. PATENT PENDING

**Cole CHEMICAL COMPANY**
**3721-27 Laclede Ave., St. Louis 8, Mo.**

AOS—8

Cole Chemical Company
3721-27 Laclede Ave., St. Louis 8, Mo.

*Gentlemen:* Please send me professional literature and samples of IODO-NIACIN.

DOCTOR.....

STREET.....

CITY.....ZONE.....STATE.....

# IS THIS YOUR PATIENT?

1.

**EARLY POSTMENOPAUSE**

Complains of low back pain, vague aches and fatigue

Posture is poor

No x-ray evidence of bone lesions

2.

**LATER POSTMENOPAUSE**

Back pain is severe, spreading to hips ("girdle pain")

Patient is round shouldered, walks with a stoop

X-ray reveals compression fractures of lower vertebrae

3.

**70 AND OVER**

Fracture of hip after a minor fall

X-ray reveals fracture of neck of femur

X-ray reveals compression fractures of lower lumbar vertebrae

These three patients have osteoporosis. Early diagnosis and treatment with "Formatrix" is important because osteoporosis is probably the only age change that can be averted. With "Formatrix" therapy, relief from the symptoms of *low back pain, vague aches* and *fatigue* may be obtained in as little as a few weeks. "Formatrix" supplies the essential materials to stimulate increased bone formation and prevent further loss of bone substance that leads eventually to loss of height, stooped posture, and disabling fractures.

The highest incidence of osteoporosis may be found among the 14,000,000 women in the U.S.A. who are 55 years of age and over. Some investigators claim that almost all women past the menopause will show some degree of osteoporosis; furthermore, if all these women were examined carefully, 50 per cent would show x-ray evidence of decreased bone mass.

Suspicion may be the handiest diagnostic tool since presenting symptoms vary from mild to severe and incapacitating pain, and no x-ray evidence of spinal degeneration is available until about 30 per cent of the bone matrix is lost. Between these two extremes there are other signs of estrogen deficiency such as *wrinkled and thinning skin*, a *tendency to appear older than stated years;* there may also be *hypercalciuria* when postmenopausal osteoporosis is complicated by acute osteoporosis of disuse.

Osteoporosis is primarily an atrophic condition of bone matrix formation and any factor that depresses osteoblastic activity or retards the formation of protein and connective tissue such as *prolonged immobilization, cortisone therapy,* or *malnutrition* will favor development of osteoporosis in both male and female.

5578 Ayerst

**AYERST LABORATORIES**
New York 16, N. Y. • Montreal, Canada

NEW

"FORMATRIX" contains three most essential bone building materials necessary *for matrix* formation, estrogen, androgen and vitamin C.

The estrogen component of "Formatrix" stimulates osteoblastic activity, thus aiding calcium and phosphorus deposition; it also imparts a feeling of "well-being." The anabolic action of methyltestosterone promotes the synthesis of protein and restores a positive nitrogen balance. Together, these hormones have a greater effect on bone and protein metabolism than either alone, and side effects are minimized because of the opposing action of the two steroids on sex-linked tissues. Vitamin C plays an important role in formation of intercellular cement substance and amino acid synthesis. "Formatrix" has a large amount of vitamin C to aid in new bone matrix formation and to further help in the healing of fractures.

**"FORMATRIX"** – each tablet contains:

| | |
|---|---|
| Conjugated estrogens equine ("Premarin"®) | 1.25 mg. |
| Methyltestosterone | 10.0 mg. |
| Ascorbic acid | 400.0 mg. |

Dosage: 1 tablet a day – In the female, three weeks of treatment with a rest period of one week between courses is recommended.

Supplied: Tablets, bottles of 60 and 500.

LITERATURE AVAILABLE ON REQUEST

1.

**EARLY POSTMENOPAUSE**
No x-ray evidence of bone lesion

2.

**LATER POSTMENOPAUSE**
X-ray reveals compression fracture of lower vertebrae

3.

**70 AND OVER**
X-ray reveals fracture of neck of femur

TO RELIEVE LOW BACK PAIN – TO PROMOTE HEALING OF FRACTURES

*in osteoporosis*

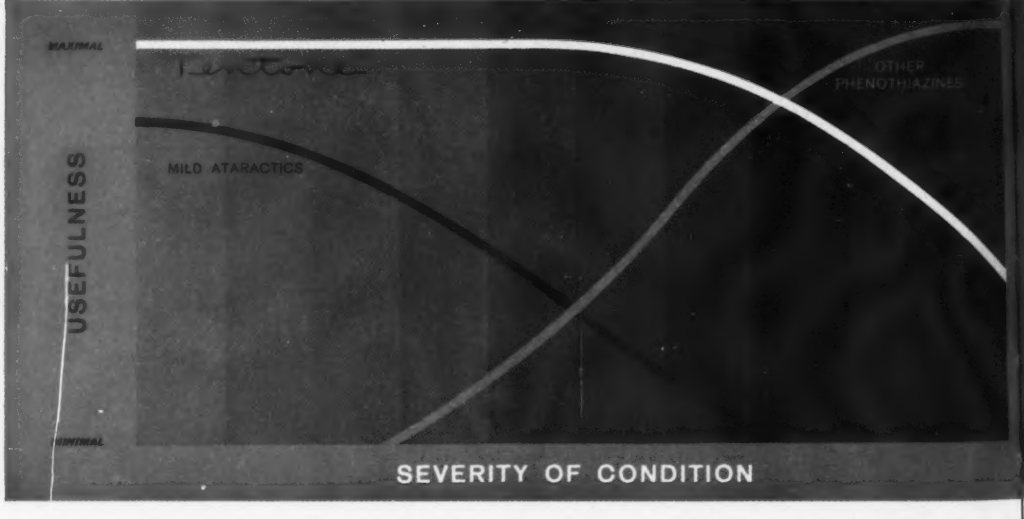
# 'FORMĀTRIX'

(Brand of Steroid – Vitamin Combination)

*for matrix formation*

new... highly effective tranquilizer

Comparison of TENTONE usefulness



# ...for extended office practice use

**Tentone**

Methoxypromazine Maleate

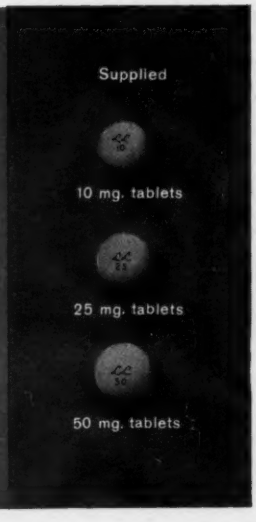
LEDERLE

NEW PHENOTHIAZINE COMPOUND FOR THE LOWER AND MIDDLE RANGE OF DISORDERS

◆ Positive, rapid calming effect in mild and moderate cases. ◆ Striking freedom from organic toxicity, intolerance, or sensitivity reaction—particularly at low dosage. ◆ Greater freedom from induced depression or drug habituation. ◆ May be useful, as with other tranquilizers, to potentiate action of analgesics, sedatives, narcotics. ◆ Facilitates management of surgical, obstetric, and other hospitalized patients. ◆ Indicated when more than a mild sedative effect is desired...and less than psychosis is involved. ◆ Dosage range: *In mild to moderate cases:* from 30 to 100 mg. daily. *In moderate to severe cases:* from 75 to 500 mg. daily.

**LEDERLE LABORATORIES,** a Division of **AMERICAN CYANAMID COMPANY,** Pearl River, New York

Lederle



NEW

from

Mead

Johnson

**a myo-** **-vascular relaxant**

# VASODĪLAN®

Pronounced VĀ-ZŌ-DY-LAN

Isoxsuprine hydrochloride, Mead Johnson

**selective peripheral action to relieve symptoms of arterial insufficiency[1]—**

intermittent claudication
leg pain
coldness and numbness of extremities
in
Arteriosclerosis Obliterans
Diabetic Vascular Disease
Buerger's Disease
Thrombophlebitis

Mead Johnson is proud to announce the availability of VASODĪLAN, an unusual new compound with myo-vascular relaxant action. The unique myo-vascular action of this substance is manifested by selective relaxant effects on smooth muscle of the peripheral and cerebral vascular beds and of the uterus.

A major indication for VASODĪLAN is in the symptomatic treatment of peripheral vascular disease.

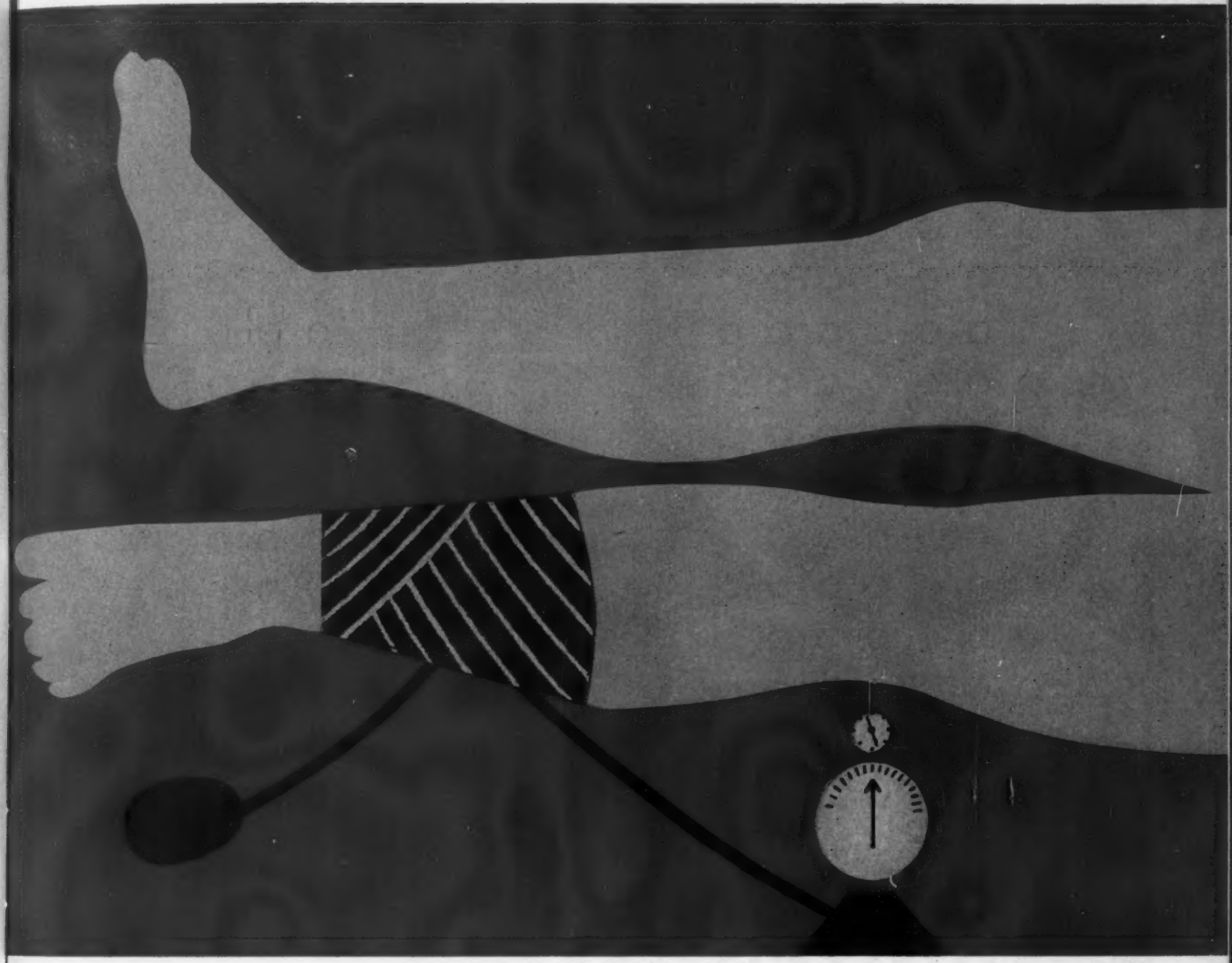
**brings blood to the deep tissues by direct action on the arterial wall[1-3]**

**with** remarkable safety in recommended doses
**without** adverse effects on coronary flow[1,2]
**without** troublesome hypotension or tachycardia[1,2]
**without** renal effects[1,2]
**without** increase in gastric acidity[2]
**without** ganglionic blocking action[1-3]
**without** development of tolerance[1]

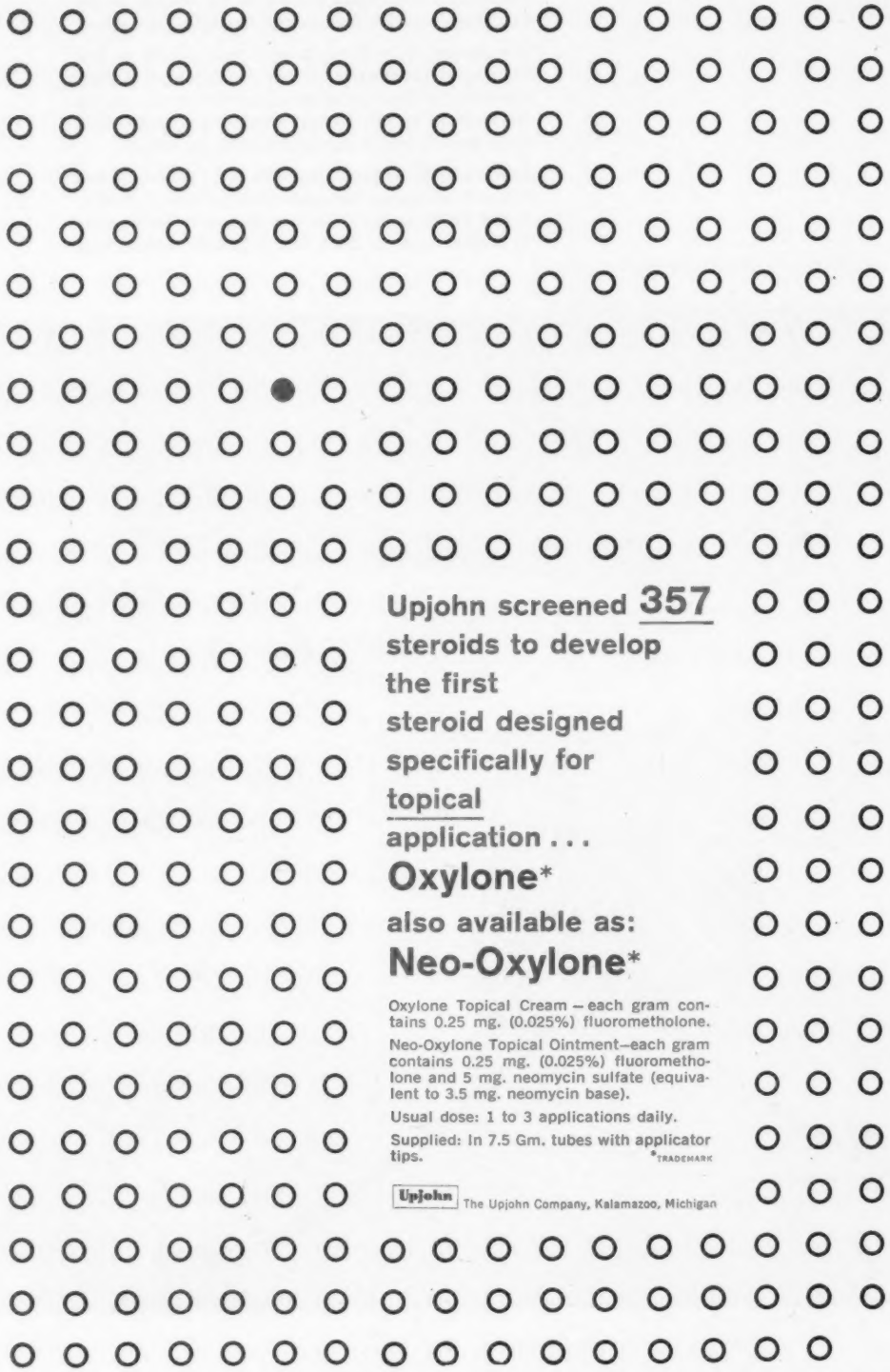
Available as VASODILAN Tablets, 10 mg., bottles of 100. VASODILAN Injection, Ampuls, 2 cc. (5 mg./cc.), boxes of 6.

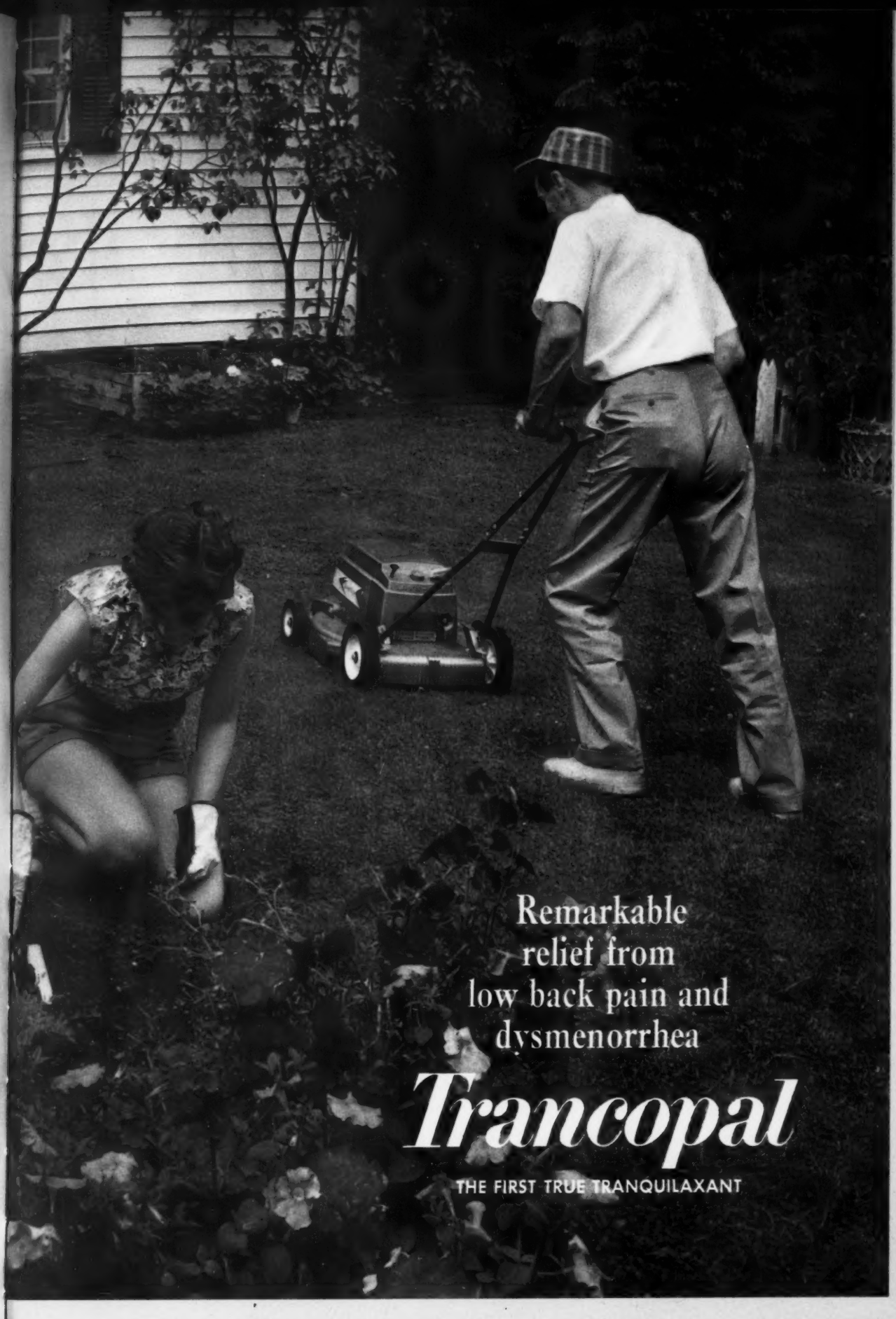
*Oral Dosage:* 10 or 20 mg. (1 or 2 tablets) three or four times a day. For complete details on indications, dosage, administration and clinical background of VASODILAN, see the brochure on this product available on request from Mead Johnson and Company, Evansville 21, Indiana.

*Bibliography:* (1) Kaindl, F.; Samuels, S. S.; Selman, D., and Shaftel, H.: Angiology, to be published. (2) Kaindl, F.; Pärtan, J., and Polsterer, P.: Wien. klin. Wchnschr. *68*:186, 1956. (3) Brücke, F., et al.: Wien. klin. Wchnschr. *68*:183, 1956.



Mead Johnson
*Symbol of service in medicine*


Upjohn screened 357
steroids to develop
the first
steroid designed
specifically for
topical
application . . .
Oxylone*
also available as:
Neo-Oxylone*
Oxylone Topical Cream – each gram contains 0.25 mg. (0.025%) fluorometholone.
Neo-Oxylone Topical Ointment–each gram contains 0.25 mg. (0.025%) fluorometholone and 5 mg. neomycin sulfate (equivalent to 3.5 mg. neomycin base).
Usual dose: 1 to 3 applications daily.
Supplied: In 7.5 Gm. tubes with applicator tips.
*TRADEMARK
Upjohn
The Upjohn Company, Kalamazoo, Michigan


Remarkable
relief from
low back pain and
dysmenorrhea
Trancopal
THE FIRST TRUE TRANQUILAXANT

# Here i
# can expec
# prescrib

## case profile no. 2758*

for low back pain

A middle-aged man had intermittent low back pain attributed to injuries received in an automobile accident three years ago. The pain radiated down both legs, making the patient walk bent over. He also had difficulty in getting out of bed and had to pull his knees up and roll out. Any heavy lifting precipitated a new attack, and he tired easily.

Findings on x-ray of the thoracic and lumbar spine were negative. All other laboratory studies were within normal limits. A herniated disc, though still a possibility, was temporarily ruled out by the neurologic examination. Previous treatment consisted of analgesics, steroids (without success), and narcotics during severe attacks.

On a dosage of Trancopal, 100 mg. t.i.d., this patient is able to walk around almost normally and carry on his regular activities as long as he does not overdo. He has received Trancopal for over seven months with excellent relief of symptoms. There have been no side effects.

**Clinical Reports on file at the Department of Medical Research, Winthrop Laboratories.*

# what you

# when you

THE FIRST TRUE TRANQUILAXANT

# Trancopal®

## for dysmenorrhea
*and premenstrual tension*

## case profile no. 3347*

A 35-year-old housewife had a history of severe dysmenorrhea and premenstrual tension. Menarche occurred at the age of 14. She is a gravida 2, para 1. Her menstrual cycle is fairly regular, and previous medical history indicates no apparent abnormalities. Findings on pelvic examination were negative. Severe tension and irritability routinely occurred from two to seven days before and during menstruation. Cramping was experienced for all three days of the menstrual period. Analgesic preparations provided limited symptomatic relief.

Trancopal, 200 mg. t.i.d., was prescribed for dysmenorrhea. It not only has relieved the severe cramping, but has provided a welcome relief from the irritability accompanying it. Because of these excellent results, Trancopal also was prescribed for her tenseness during the premenstrual period with a most gratifying response.

This patient has successfully remained on the above regimen for over six months without adverse effects.

*Turn Page for Complete Listing of Indications and Dosage*

THE FIRST TRUE TRANQUILAXANT

# Trancopal

## potent muscle relaxant

## effective tranquilizer

- In musculoskeletal disorders, effective in 91% of patients.[1]
- In anxiety and tension states, effective in 88% of patients.[1]
- Low incidence of side effects (2.3% of patients). Blood pressure, pulse rate, respiration and digestive processes unaffected by therapeutic dosage. No effects on hematopoietic system or liver and kidney function.
- No gastric irritation. Can be taken before meals.
- No clouding of consciousness, no euphoria or depression.

**Indications:**

**Musculoskeletal:**
Low back pain (lumbago, etc.)
Neck pain (torticollis, etc.)
Bursitis
Rheumatoid arthritis
Osteoarthritis
Disc syndrome
Fibrositis
Ankle sprain, tennis elbow, etc.
Myositis
Postoperative muscle spasm

**Psychogenic:**
Anxiety and tension states
Dysmenorrhea
Premenstrual tension
Asthma
Angina pectoris
Alcoholism

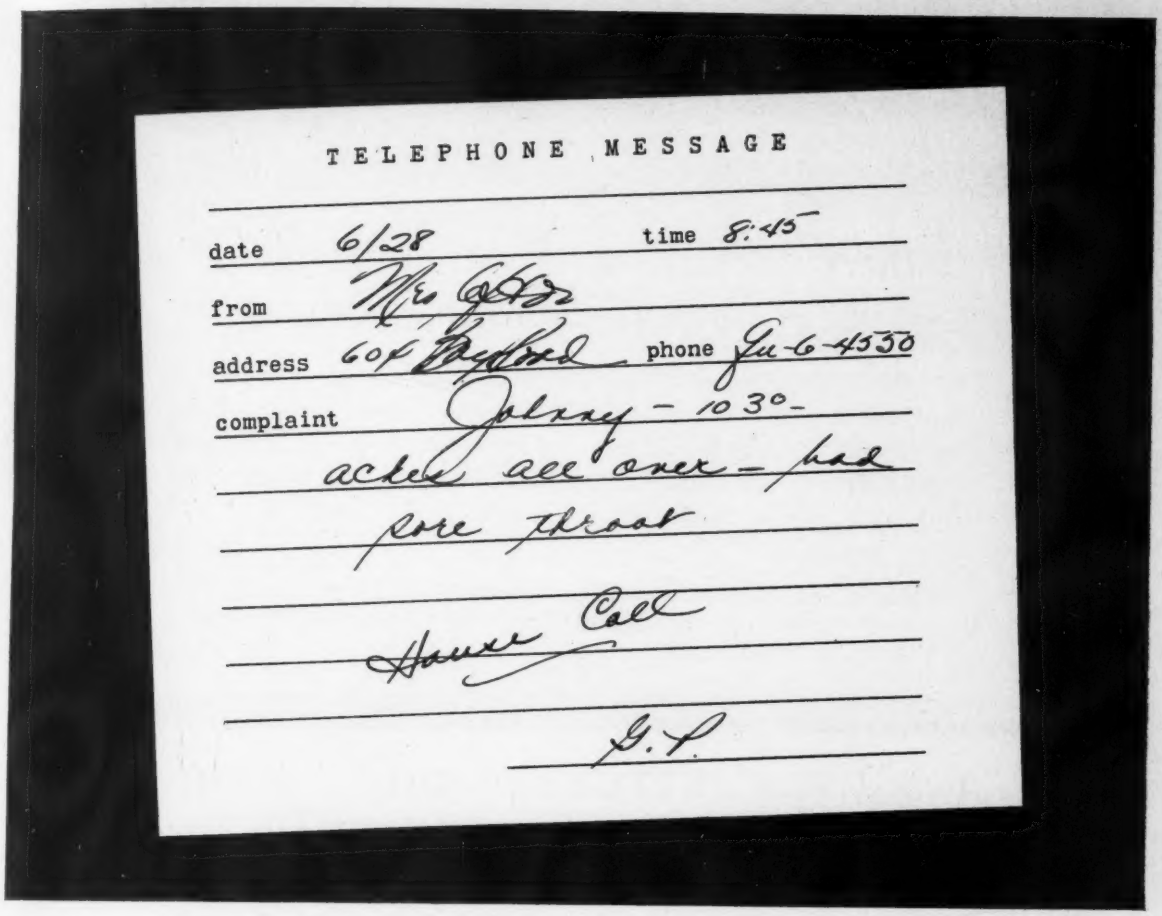
Trancopal Caplets®:
**100 mg.** (peach colored, scored), bottles of 100.

**Dosage:** Adults, 100 or 200 mg. orally three or four times daily. Relief of symptoms occurs in fifteen to thirty minutes and lasts from four to six hours.

1. Collective Study, Department of Medical Research, Winthrop Laboratories.

Winthrop LABORATORIES
New York 18, New York

Trancopal (brand of chlormezanone) and Caplets, trademarks reg. U.S Pat. Off. Printed in U.S.A. 6-59 (1385M)




*the house-call antibiotic*

# COSA-SIGNEMYCIN®

**glucosamine-potentiated tetracycline with triacetyloleandomycin**

*wide range of action is reassuring when culture and sensitivity tests are impractical*

More than 90 clinical references attest to the superiority and effectiveness of Cosa-Signemycin (Signemycin). Bibliography and professional information booklet available on request.

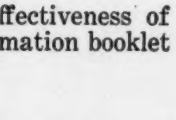
**CAPSULES:** *125 mg., 250 mg.*

**ORAL SUSPENSION:** *raspberry flavored, 2 oz. bottle, 125 mg. per teaspoonful (5 cc.)*

**PEDIATRIC DROPS:** *raspberry flavored, 10 cc. bottle (with calibrated dropper), 5 mg. per drop (100 mg. per cc.)*

Pfizer *Science for the world's well-being*

**PFIZER LABORATORIES**
**Division, Chas. Pfizer & Co., Inc.**
**Brooklyn 6, N. Y.**



# AN AMES CLINIQUICK™

CLINICAL BRIEFS FOR MODERN PRACTICE

## *Is there a relationship between premature impotence and diabetes?*

Yes. The incidence of premature impotence was studied in 198 diabetic men,[1] and found to be two to five times higher than that reported for the general population.[2] In many of the cases observed, impotence developed early in the history of the disease, suggesting that the possibility of diabetes mellitus be considered whenever a man complains of premature impotence.

(1) Rubin, A., and Babbott, D.: J.A.M.A. *168*:498, (Oct. 4) 1958. (2) Kinsey, A. C.; Pomeroy, W. B., and Martin, C. E.: Sexual Behavior in the Human Male, Philadelphia, W. B. Saunders Company, 1948.

## FOR EVEN BETTER CONTROL OF THE MODERATE AND THE SEVERE DIABETIC

*uniformly reliable readings with*

**COLOR-CALIBRATED CLINITEST®** BRAND *Reagent Tablets*

65059

the STANDARDIZED urine-sugar test that provides reliable quantitative estimations *throughout* the critical range.

*results that are easier to interpret*

The new CLINITEST Urine-Sugar Analysis Set contains the standard color scale that provides a complete range of readings without omissions... includes the critical ¾% (++) and 1% (+++)... and an improved analysis record form.

Daily urine-sugar readings may be connected to form a clinically useful graph ...a day-to-day "urine-sugar profile" that reveals at a glance individual trends and degree of control.

AMES COMPANY, INC
Elkhart • Indiana
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# in epilepsy prerequisite for emotional adjustment: therapy

"The most effective form of psychotherapy is to demonstrate to the patient that his seizures can be adequately controlled by the use of anticonvulsant medication."*

## requisite for therapy:
## THE PARKE-DAVIS FAMILY OF ANTICONVULSANTS

effective anticonvulsants for most clinical needs

### for control of grand mal and psychomotor seizures

Sodium diphenylhydantoin sodium, Parke-Davis) is supplied in several forms including Kapseals® of 0.03 Gm. and of 0.1 Gm. in bottles of 100 and 1,000.

Dilantin

Kapseals (Dilantin 100 mg., phenobarbital 30 mg., desoxyephedrine hydrochloride 2.5 mg.), bottles of 100.

Phelantin

### for the petit mal triad

Milontin

Kapseals (phensuximide, Parke-Davis) 0.5 Gm., bottles of 100 and 1,000. Suspension, 250 mg. per 4 cc., 16-ounce bottles.

Celontin

Kapseals (methsuximide, Parke-Davis) 0.3 Gm., bottles of 100.

*Literature supplying details on dosage and administration available on request.*

*Carter, S.: *M. Clin. North America* 315 (March) 1953.

PARKE, DAVIS & COMPANY · DETROIT 32, MICHIGAN

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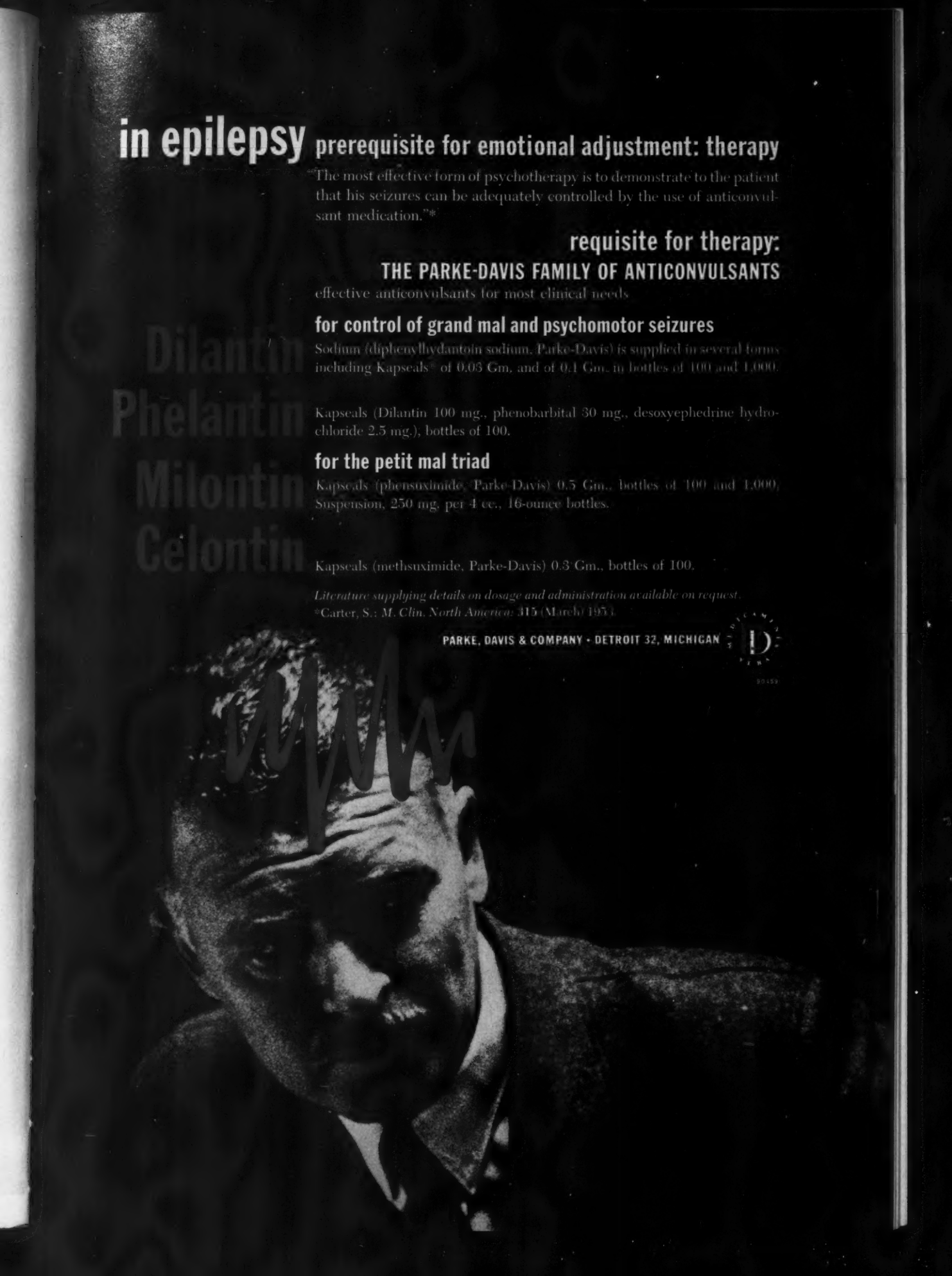

# Fingerprint

It's an odd sensation to watch a chemical compound write down the shape and composition of its molecule. And yet this is what happens in infrared spectrophotometry. The substance tells you what it is just as surely as though it had left a fingerprint.

How is it done? Let Dominic Mercaldo, the Wyeth chemist in our picture, demonstrate. Dom passes an infrared beam, of varying wavelength, through a compound that he wishes to identify. The rays are picked up by mirrors and transmitted through rotating prisms. Finally, a pen automatically traces the absorption spectrum of the substance—and this is Dom's clue to its molecular configuration and composition. No other compound gives precisely the same pattern.

An analytical chemist, with advanced training at M.I.T., Dom presides over the spectrophotometers —infrared and ultraviolet—in the Control Laboratory of one of Wyeth's manufacturing units.

Dom's spectrograms make conclusive fingerprints for the identification of many pharmaceutical compounds. Often, they tell him what no other kind of assay can. Moreover, they tell him about potency and purity as well. The procedure is one of many in the constant quality control of Wyeth drugs at all stages of manufacture and packaging . . . the testing and retesting of raw materials, intermediates, and every dose form of the finished product.

There's another fingerprint too—the control number on a Wyeth label. As nothing else can, it stands for the rigid standards and specifications that each Wyeth drug meets before it enters medical practice.

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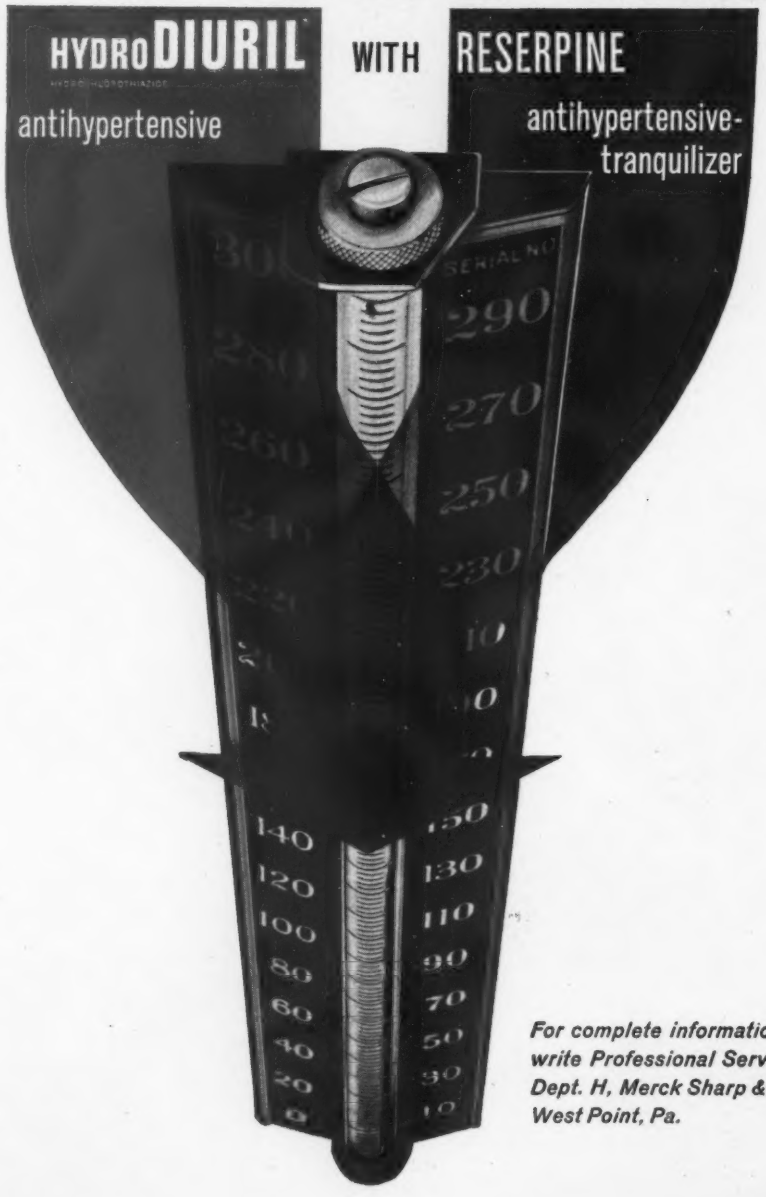
## greater antihypertensive effect...fewer side effects

# HYDROPRES*

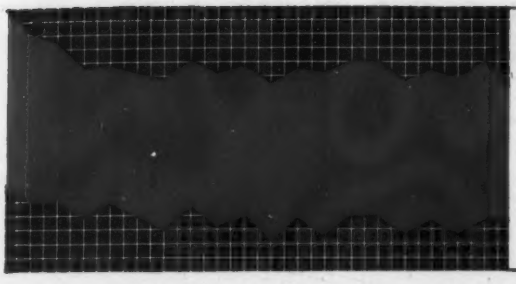
HYDRODIURIL® WITH RESERPINE

antihypertensive

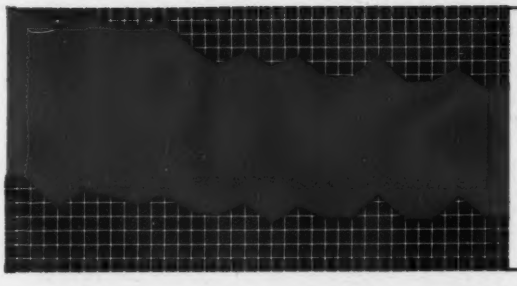
antihypertensive-tranquilizer



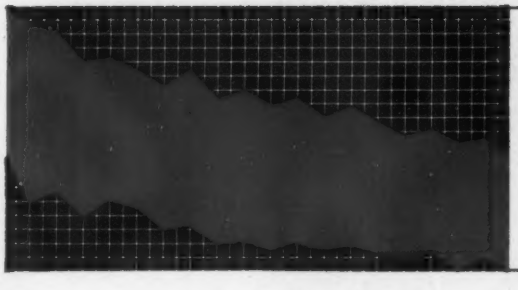

*For complete information write Professional Services, Dept. H, Merck Sharp & Dohme, West Point, Pa.*



**HYDRODIURIL** alone



**RESERPINE** alone



**HYDROPRES**

much more effective than either of its components alone

- Effective by itself in a majority of patients. Provides smooth, more trouble-free management of hypertension.
- Since HYDRODIURIL and reserpine potentiate each other, the required dosage of each is lower when given together as HYDROPRES than when either is given alone.
- HYDROPRES provides the needed and valuable tranquilizing effect of reserpine. Lower dosage may reduce such side effects of reserpine as excessive sedation and depression.
- Arrest or reversal of organic changes of hypertension may occur.
- Headache, dizziness, palpitations and tachycardia are usually promptly relieved. Anginal pain may be reduced in incidence and severity.
- With HYDROPRES, dietary salt may be liberalized.
- Convenient, controlled dosage.

**HYDROPRES-25**

25 mg. HYDRODIURIL, 0.125 mg. reserpine.
One tablet one to four times a day.

**HYDROPRES-50**

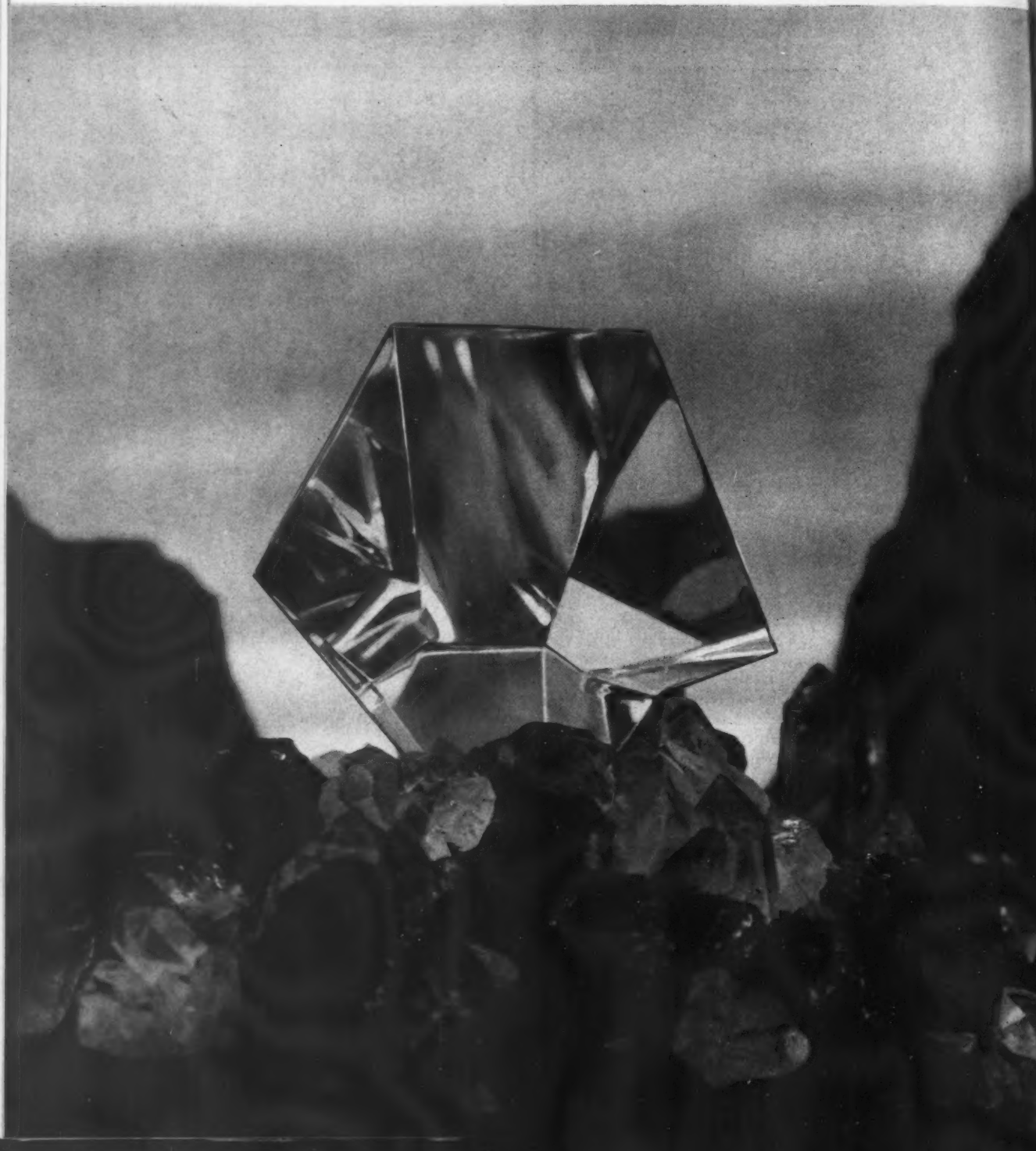
50 mg. HYDRODIURIL, 0.125 mg. reserpine.
One tablet one or two times a day.

If the patient is receiving ganglion blocking drugs or hydralazine, their dosage must be cut in half when HYDROPRES is added.

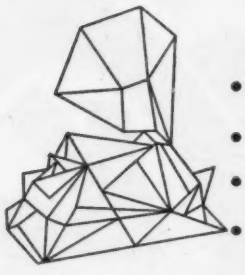
MSD **MERCK SHARP & DOHME,** DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

*HYDRODIURIL AND HYDROPRES ARE TRADEMARKS OF MERCK & CO., INC.

# PURE ANTIHISTAMINE ACTION NOW A PHARMACOLOGIC FACT BECAUSE DĪSOMER SHEDS THE MOLECULAR DROSS



# NEW...IN THE TREATMENT OF ALLERGIC DISORDERS



- *"...high therapeutic index"*[1]
- *unsurpassed clinical efficacy*
- *highly effective in exceptionally small doses*
- *side effects reduced to placebo level*

## Disomer....a major scientific advance in the pharmacology of antihistamines!

DISOMER was described as being *"...as close to a pharmacologically pure form of histamine antagonist as the chemist can produce."*[1] Incorporating the newest knowledge of structure-function relationships, DISOMER comes closest thus far to the therapeutic ideal of pure antihistamine activity. DISOMER represents the *d*-isomer of racemic brompheniramine maleate. In shedding the *l*-isomer a high point in clinical effectiveness is achieved while side effects are reduced to the placebo level.

Therapeutic results have been noteworthy with 88% effectiveness reported.[2] Equally noteworthy is the virtual absence of clinically significant adverse reactions. Indeed, the sole side effect reported was occasional, mild drowsiness in only 5% to 6% of patients.

With DISOMER your allergic patient remains your alert patient while enjoying unsurpassed freedom from allergic symptoms. Ready now for your prescription—DISOMER is available in a variety of dosage forms to fit your patients' individual requirements.

*Availability:*

| | |
|---|---|
| DISOMER CHRONOTAB* | 6 mg. |
| DISOMER CHRONOTAB* | 4 mg. |
| DISOMER Tablets | 2 mg. |
| DISOMER Syrup | 2 mg. per 5 cc. |

*Usual dosage:*

| | |
|---|---|
| 6 mg. CHRONOTAB | b.i.d. |
| 4 mg. CHRONOTAB | t.i.d. |
| 2 mg. Tablet | q.i.d. |
| Syrup 1 teaspoonful | q.i.d. |

**Chronotab* is White's repeat-action tablet.

*References:* (1) Gould, A. H. and Long, D. L.: Clinical Pharmacology and Therapeutic Use of Dexbrompheniramine Maleate ( Disomer ), a new Histamine Antagonist (submitted for publication). (2) Medical Department, White Laboratories, Inc.

WHITE LABORATORIES, INC.
Kenilworth, New Jersey

# DISOMER

DEXBROMPHENIRAMINE MALEATE

*...sheds the molecular dross*

antibiotic **resistant STAPHYLOCOCCI** are killed by

# ZEPHIRAN®

in seconds

USE ZEPHIRAN TO HELP CURB THE CURRENT MENACE TO HOSPITAL HEALTH

Preoperative preparation • Scrub-up • Surgical dressings • Wound irrigation • Sterile storage of instruments • Furniture, wall, and general sickroom disinfection • Laundry

Zephiran chloride, brand of benzalkonium chloride refined (to ensure quality). **WINTHROP LABORATORIES, NEW YORK 18, N. Y.**

1335M

# IMPROVING ON NATURE

A luxurious gift of nature—the wheat field is of more value to man because he has modified it to meet his specific requirements. Such an improvement on nature is also found in the treatment of hypothyroidism. Here the response to Proloid provides a dramatic example of man's ability to improve what nature has provided.

Proloid not only restores the patient to a euthyroid state—it does it safely and consistently. The only purified but complete thyroglobulin, it never varies in potency from prescription to prescription—the result of an exclusive double assay.

Prescribe Proloid; 3 grains is the average dosage for the mild hypothyroid patient.

PROLOID®

*dependable*
*safe*
*economical*

WARNER
CHILCOTT
MORRIS PLAINS, N.J.

# What IS The Truth About Dietary Fats?

Recently a great deal of interest has been aroused on the question of a possible etiologic link between the ingestion of food fats and pathophysiologic changes in certain body tissues.

Basic research on this problem is being carried on throughout the world, the approach ranging from animal experimentation to biochemistry, to ethnological statistics.

In a number of instances the lay press has prematurely reported the findings of one research group or another, *without the benefit of unbiased competent evaluation*. Some scientific as well as lay articles have attempted to correlate inconclusive, fragmentary, and conflicting results, frequently leading to undesirable confusion.

The problem, however, is far from settled. If final results of this world-wide research establish beyond reasonable scientific doubt that fat intake is directly related to degenerative disease, accurate information should be provided for the profession so that in turn the public may be properly enlightened.

On the other hand, if conclusive evidence points to little or no etiologic relationship between fat ingestion and degenerative disease, it will become difficult for the scientific world to counteract the cumulative effects of misinformation on the public mind.

Furthermore, evidence is accumulating to indicate that lowering of the plasma cholesterol by limitation of dietary fat and by administration of unsaturated fatty acids may actually increase the deposition of cholesterol in the tissues.[1]

The obvious need at present is for basic research and proper evaluation as well as unprejudiced correlation of findings from all quarters, so that the medical profession as well as the public may be protected from the publicizing of premature and unwarranted conclusions.

1. Kuhl, W. J., Jr., and Cooper, J.: Exchangeable $C^{14}$-Cholesterol Pool Size as an Index of Cholesterol Metabolism: Effect of Low Fat and Highly Unsaturated Fat Diets, Proc. Cen. Soc. Clin. Res., J. Lab. & Clin. Med. *52*:919 (Dec.) 1958.

## STATEMENT BY NATIONAL RESEARCH COUNCIL

"A large amount of information has been made available in recent years relating fats to the causation of atherosclerosis, coronary artery disease, and other similar diseases. However, the data are so incomplete and conflicting that it is impossible to draw conclusions which are universally acceptable to nutritionists and medical authorities."

"Until it is clearer which fats are more desirable nutritionally and which, if any, are undesirable—major changes in American dietary habits are not to be recommended."

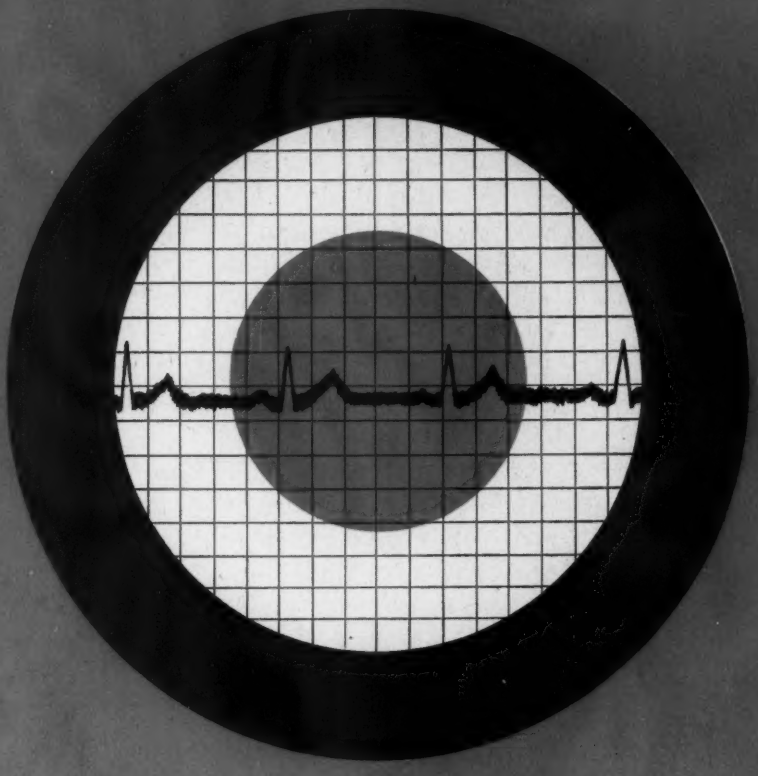
•

The Role of Dietary Fat in Human Health: National Academy of Sciences—National Research Council, Washington, D. C., Publication 575, 1958.

**American Meat Institute**

**Main Office, Chicago... Members Throughout the United States**

for easy
elimination
in cardiovascular
patients



# TARGET ACTION specifically on the large bowel

# DORBANE®

(1,4 dihydroxyanthraquinone)

**selective peristaltic stimulant**

**▪ smooth, overnight action ▪ no griping ▪ well tolerated, non-habituating**

Available in 75 mg. scored tablets and suspension.

WHERE STOOL SOFTENING IS ALSO INDICATED

## DORBANTYL® FORTE

(Dorbane, 50 mg. + dioctyl sodium sulfosuccinate, 100 mg.)*

**Double-strength capsules for maximum economy and convenience.**

## DORBANTYL®

(Dorbane, 25 mg. + dioctyl sodium sulfosuccinate, 50 mg.)*

**For lower dosage and in children.**

Available in capsules and suspension.

***In proportions proved optimal by clinical trial in over 550 cases.**

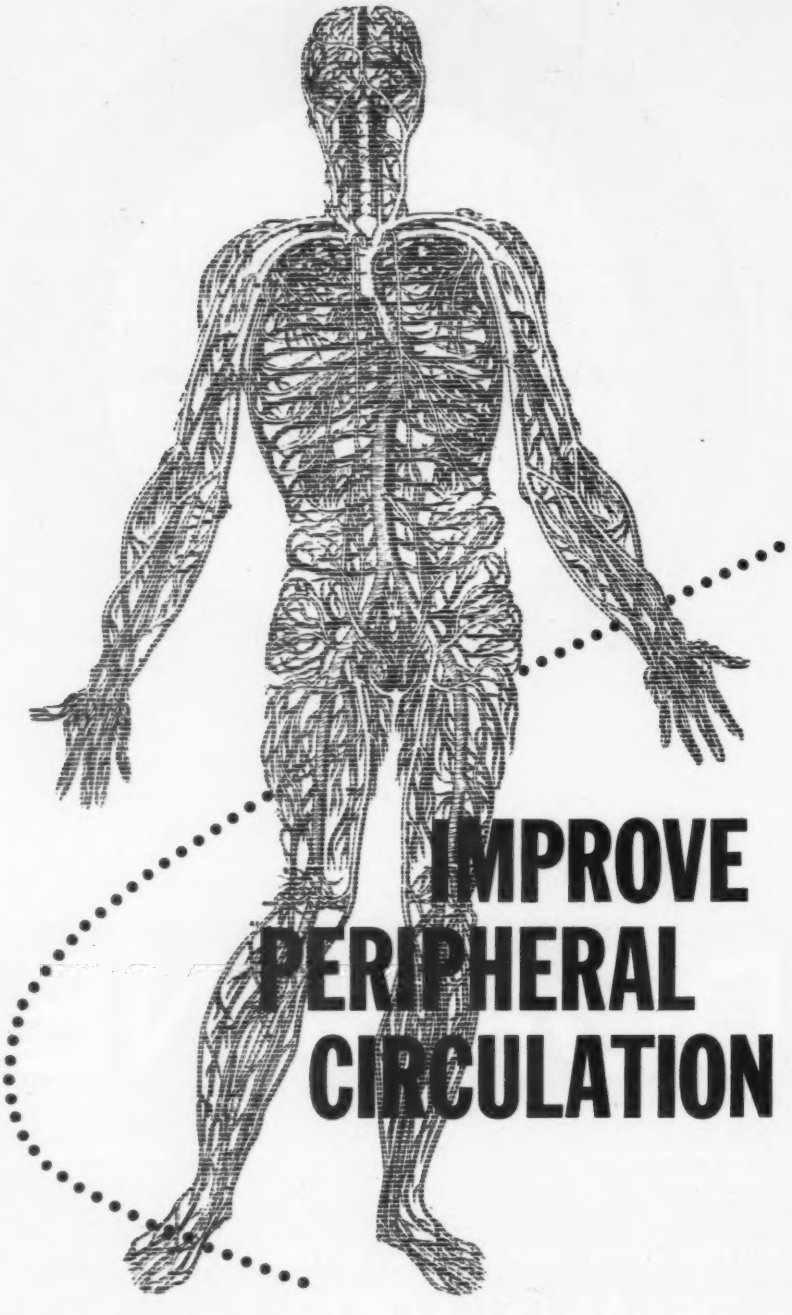
(Marks, M. M.: Clin. Med. 4:153, 1957)

Schenlabs

SCHENLABS PHARMACEUTICALS, INC., NEW YORK 1, N. Y.

Manufacturers of NEUTRAPEN® for penicillin reactions.

®TRADEMARKS REG. U. S. PAT. OFF. DORBANTYL FORMULA PATENTED



# VM NO. 37

# IMPROVE PERIPHERAL CIRCULATION

*Meniere's syndrome*
*tinnitus*
*high-tone deafness*
*vertigo & dizziness*
*tension headache*
*migraine*
*Raynaud's disease*
*intermittent claudication*
*chronic cold hands & feet*
*and other conditions*
*secondary to*
*poor blood flow*

***Bottle of 120 tablets . . . $3.50*** | ***Bottle of 360 . . . $9.00***

GLENDALE 1
VITAMINERALS INC.
CALIFORNIA

# the complaint: "nervous indigestion"

**the diagnosis:** any one of several nonspecific gastrointestinal disorders requiring relief of symptoms by sedative-antispasmodic action with concomitant digestive enzyme therapy. **the prescription:** a new formulation, incorporating in a single tablet the actions of Donnatal and Entozyme. **the dosage:** two tablets three times a day, or as indicated.

**the formula:** *in the gastric-soluble outer layer:*

| | |
|---|---|
| Hyoscyamine sulfate | 0.0518 mg. |
| Atropine sulfate | 0.0097 mg. |
| Hyoscine hydrobromide | 0.0033 mg. |
| Phenobarbital (1/8 gr.) | 8.1 mg. |
| Pepsin, N.F. | 150 mg. |

*in the enteric-coated core:*

| | |
|---|---|
| Pancreatin, N.F. | 300 mg. |
| Bile salts | 150 mg. |

# DONNAZYME™

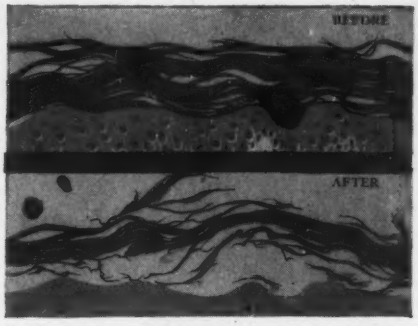
Rx Robins

**A. H. ROBINS COMPANY, INCORPORATED • RICHMOND 20, VIRGINIA**

# New freedom from embarrassment and distress of psoriasis!

# Alphosyl®

LOTION




## DISAGGREGATES PSORIATIC SCALE

In vitro studies show that the keratin-dispersing action of allantoin is exceptionally effective in disaggregating psoriatic scale.[1,2] It apparently acts on an abnormal cement substance between cornified cells.[2,3] Coal tar, too, helps break up the horny layer.[2] Together, these agents provide rapid clearing of psoriatic lesions as well as the underlying inflammation and erythema.

ALPHOSYL Lotion, used by many physicians both in routine practice and in carefully controlled studies, proved highly successful.[2,4-7] The lotion permits complete avoidance of the potential hazards of certain other methods of treatment, such as superficial x-ray, heavy metals and corticosteroids.[7]

Advantages: • Treatment-fastness not observed • Cosmetic qualities permit free application to the scalp • Well tolerated • May be freely used on tender areas

**FORMULA:** Allantoin 2% and special coal tar extract 5% in a greaseless, stainless, vanishing lotion base.

**SUPPLIED:** Bottles of 8 fl. oz.

**APPLICATION:** For maximum therapeutic results rub thoroughly into lesions 2 to 4 times daily. For maintenance apply once or twice a week.

**REFERENCES:** 1. Flesch, P.: Proceedings Scientific Session. Toilet Goods Assoc. June, 1958. 2. Samitz, M. H.: Ann. New York Acad. Sc. *73*:1020, 1958. 3. Flesch, P., and Jackson Esoda, E. C.: Ann. New York Acad. Sc. *73*:989, 1958. 4. Bleiberg, J., and Saltzman, J. A.: Clin. Med. *5*:485, 1958. 5. Bleiberg, J.: Ann. New York Acad. Sc.: *73*:1028, 1958. 6. Clyman, S. G.: Ann. New York Acad. Sc. *73*:1032, 1958. 7. Welsh, A. L., and Ede, M.: Ohio M. J.: to be published.

For psoriasis with acute inflammation

**Alphosyl-HC™**

Alphosyl with 0.25% hydrocortisone
Supplied in bottles of 4 fl. oz.

R&C

REED & CARNRICK
Jersey City 6, New Jersey

Improved molecular structure!
Higher sodium chloride excretion!

# 18-hour diuresis on a single 50-mg. tablet

# saluron™ TABLETS

sustained-action hydroflumethiazide · Bristol

Demonstrated[1] to achieve—

**30% MORE SODIUM EXCRETION**
than maximally effective parenteral dosage of meralluride

**62% MORE SODIUM EXCRETION**
than maximally effective oral dosage of chlorothiazide

. . . with less risk of potassium and bicarbonate depletion

. . . with no significant serum electrolyte changes

Bristol

A RECORD OF PROGRESS

FIRST — chlorothiazide
NEXT — hydrochlorothiazide
THEN — flumethiazide
**NOW — sustained-action hydroflumethiazide 'Bristol'**

# NOW···more efficient, sustained diuresis with a single 50-mg. tablet of this new and improved oral diuretic

# SALURON™

sustained-action hydroflumethiazide 'Bristol'

TABLETS

## clinical research findings

- Effective dose 50 mg. per day.[1-6]
- Prompt sodium excretion, with "a duration of at least 18 hours."[2]
- 30% **more** natriuresis than parenteral meralluride — 62% **more** than oral chlorothiazide.[2]
- Less potassium and bicarbonate excretion or pH change than with chlorothiazide or hydrochlorothiazide.[2]
- "No significant serum electrolyte changes."[2]
- Continued effectiveness with prolonged use.[1,2,4,5,6]
- Well tolerated.[1-6]

**INDICATIONS:**
SALURON is indicated for the treatment of salt and water retention associated with cardiac or renal insufficiency, hepatic cirrhosis, pregnancy, premenstrual syndrome, or steroid administration.

**DOSAGE:**
Usual dose one tablet on arising. Some patients respond to as little as 25 mg. per day; but doses as high as 200 mg. may be used. Ideally, the dosage should be adjusted to the individual patient's need, so that effective diuresis is produced with the minimal dose.

**SUPPLY:**
Scored 50 mg. tablets of sustained-action hydroflumethiazide; bottles of 50.

Comprehensive information on administration, dosage and precautions on package insert, or available on request.


**REFERENCES:**

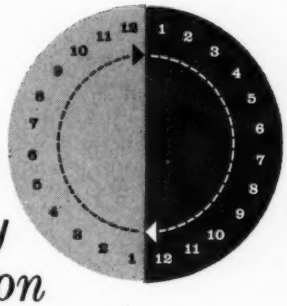
1. Dube, A. C., Van Duyn County Hospital, Onondaga, N. Y.: Personal communication.
2. Ford, R. V., Nickell, J., and Dennis, E. W.: Ant. Med. & Clin. Ther. (In press.)
3. Fuchs, M., Hahnemann Medical College, Philadelphia: Personal communication.
4. Hudson, R., Meyer Memorial Hospital, Buffalo, N. Y.: Personal communication.
5. Meilman, E., Long Island Jewish Hospital, New Hyde Park, N. Y.: Personal communication.
6. Yu, Paul, University of Rochester Medical School, Rochester, N. Y.: Personal communication.


Bristol LABORATORIES INC., SYRACUSE, NEW YORK

# Miltown® in continuous release capsules

# Rx Meprospan*

## the 24-hour tranquilizer



*safe, continuous relief of anxiety and tension ... all day ... all night*

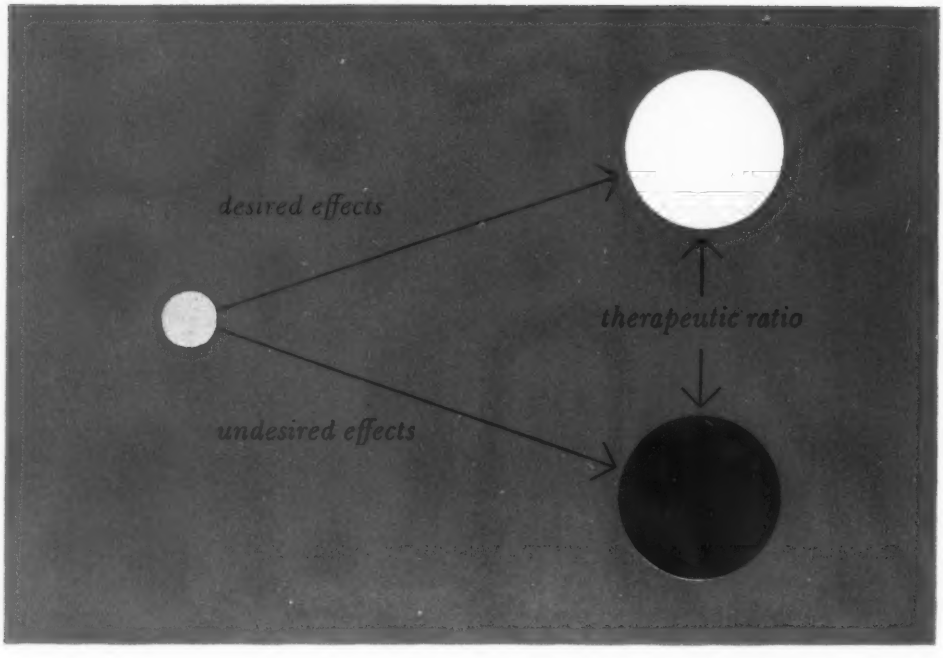
*Supplied:* 200 mg. continuous release capsules of Miltown (meprobamate, Wallace) in bottles of 30.

*Literature and samples on request*

WALLACE LABORATORIES • *New Brunswick, N.J.*

*TRADE-MARK

CME-9618

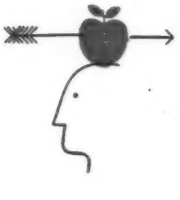



# The best therapeutic ratio in the steroid field confirmed by a comparative clinical study of

prednisone
prednisolone
methylprednisolone
triamcinolone
dexamethasone

in 65 rheumatoid arthritis patients:

". . . It would appear from these comparative observations that methylprednisolone [Medrol] probably is the steroid of choice for initial trial in a patient with rheumatoid arthritis. It is potent, and displays a slightly improved 'safety' record, showing a reduced frequency of disturbing side effects compared with the other steroids."[1]



# Medrol

TRADEMARK, REG. U. S. PAT. OFF. — METHYLPREDNISOLONE, UPJOHN

*. . . hits the disease, but spares the patient*

1. Neustadt, D. H.: Corticosteroid Therapy in Rheumatoid Arthritis: Comparative Study of Effects of Prednisone and Prednisolone, Methylprednisolone, Triamcinolone and Dexamethasone, J.A.M.A., in press.

**Upjohn**

# IN HAY FEVER

## BLOCK THE ALLERGIC RESPONSE...RELIEVE INFLAMMATION AND EDEMA

## A SPECIFIC NASAL DECONGESTANT

ADMINISTRATION: 6 years and over, 2-4 drops Nasal Solution in each nostril, not oftener than every 3 hours. Under 6 years use Pediatric Nasal Drops (1-3 drops) as above. (Under 2 years, 1 or 2 drops.)

NOTE: Overdosage may cause deep sleep in infants and young children.

SUPPLIED: 1/2 oz. bottles. COR-TYZINE NASAL SOLUTION and COR-TYZINE PEDIATRIC NASAL DROPS.

NEW ***Cor-Tyzine****

tetrahydrozoline hydrochloride — prednisolone

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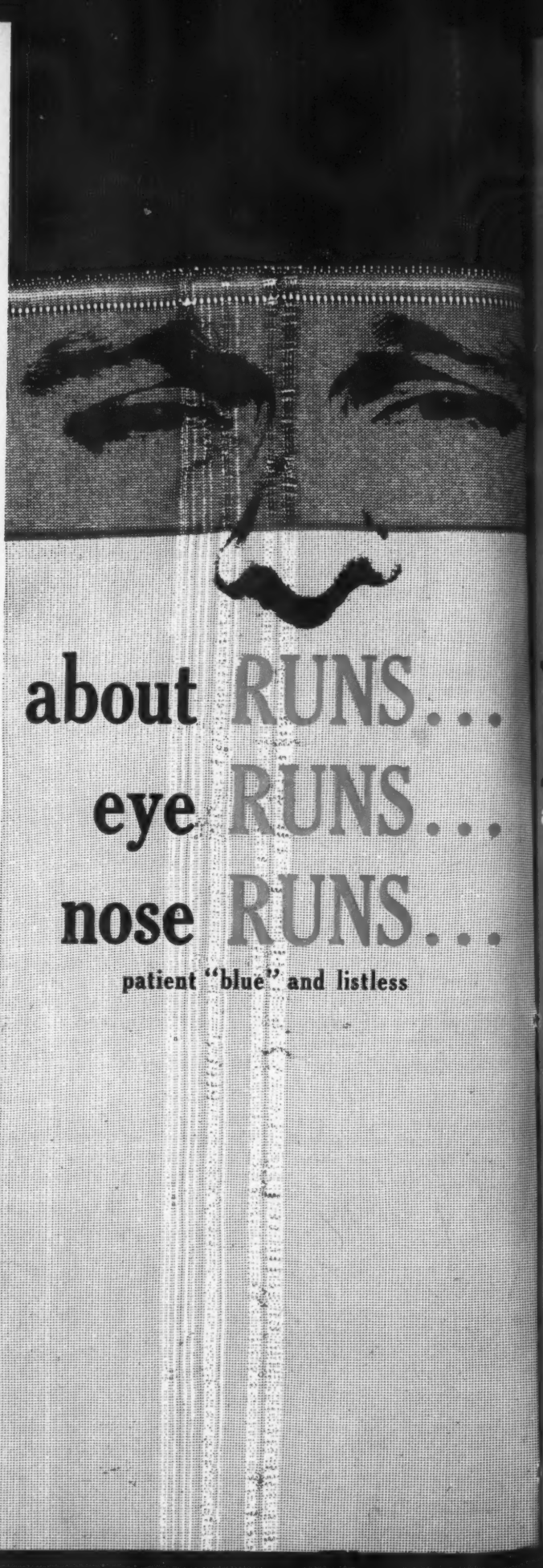

# what to do about RUNS...
# eye RUNS...
# nose RUNS...

**patient "blue" and listless**

in allergy

# NALERTAN

a new Neisler Durabond® product

**dries** secretions

**eliminates** congestion

**stops** itching

**brightens** the outlook

**all day or night with a single oral dose · · · with a remarkable lack of side effects**

DURABOND

in pollen allergies, contact dermatoses, food sensitivities, and a wide variety of allergic associated disorders

**NALERTAN** provides

**new chemical forms of two outstanding antihistamines** . . . acting synergistically for broad, prolonged blockage of histamine response.

**a long-acting sympathomimetic** . . . to lift the misery, combat lassitude and brighten the outlook . . . hasten recovery.

**Employs the Durabond principle** . . . to act within minutes . . . relieves for hours . . . just one dose in the morning controls lacrimation, makes breathing easier, relieves itching—all day. And, one dose upon retiring keeps the patient symptom-free . . . allows uninterrupted rest all night.

1 or 2 tablets twice a day. For economy, prescribe in original pkgs. of 100.

Each Durabond tabule contains: Chlorpheniramine tannate, 8 mg.; Pyrilamine tannate, 25 mg.; Tanphetamin (*d*-amphetamine tannate), 10 mg.

Neisler **IRWIN, NEISLER & CO.**
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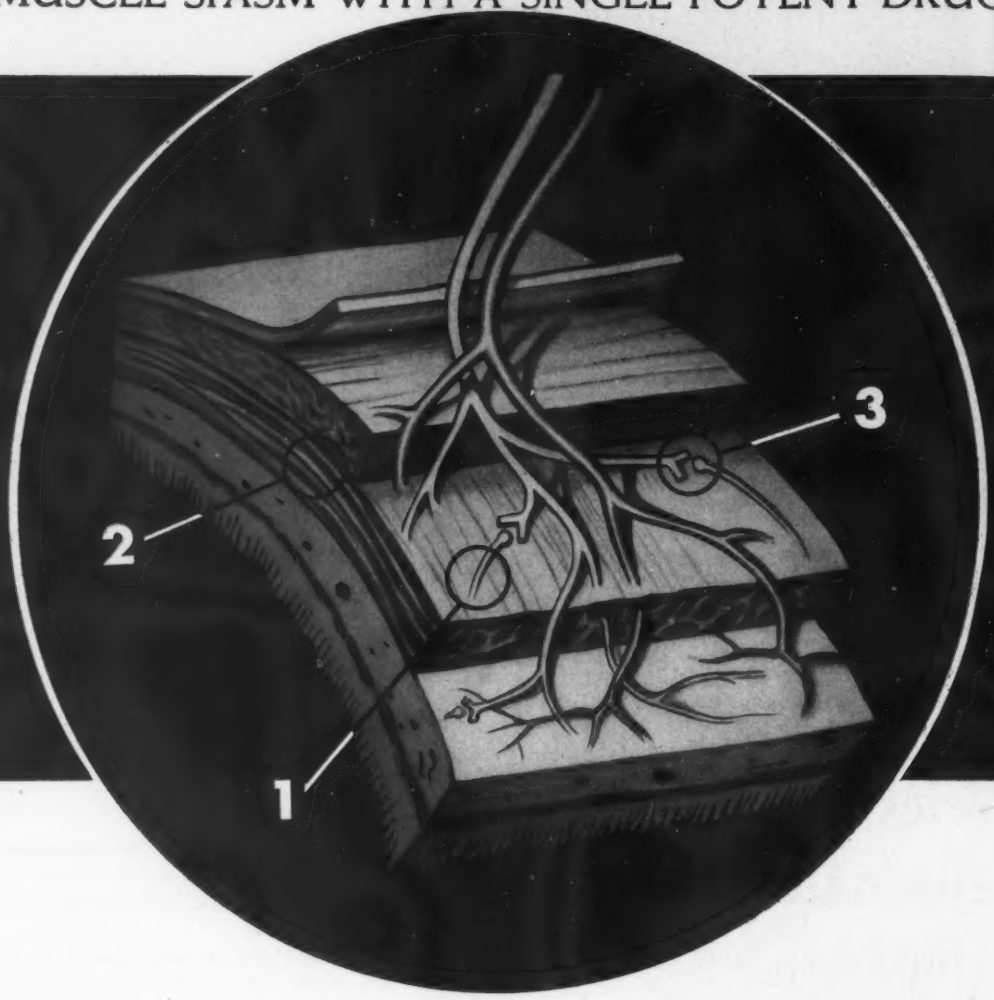
# UNIQUE THREE-WAY CONTROL OF SMOOTH MUSCLE SPASM WITH A SINGLE POTENT DRUG




① ANTICHOLINERGIC inhibition of parasympathetic stimuli

② MUSCULOTROPIC spasmolytic action directly on smooth muscle

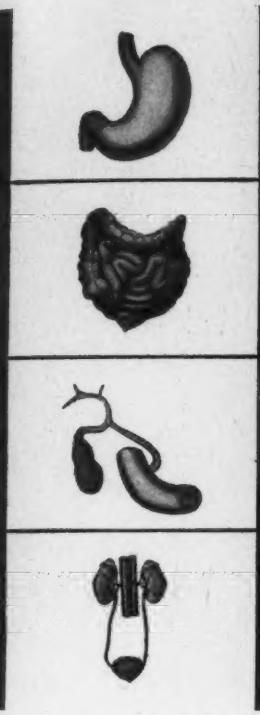
③ GANGLION-BLOCKING action at synaptic level

# "MUREL"®

Brand of Valethamate bromide

IN SMOOTH MUSCLE SPASM

*"potent in relaxing the spasm of smooth muscle whether in the G. I., or G. U. tracts, or the gallbladder."*[1]



*in peptic ulcer*—breaks the chain reaction of spasm-pain[2,3]

*in G.I. spasm*—severe convulsive pain and vomiting reported eliminated or substantially improved without unpleasant side effects or toxic reactions[2]

*in biliary spasm* and chronic cholecystopathies with or without stones—excellent response promptly achieved[3]

*in G.U. spasm*—in postoperative spasm, cystitis, and pyelitis, effective relief of pain and spasm was noted in all of a series of 75 patients[4]

**Effective and well tolerated**..."MUREL" provides decisive relief without drug-induced complications; its coordinated three-way action permits significantly low dosage and minimizes reaction potential of any one mechanism; rapidly detoxified and excreted, avoiding cumulative effects. With average therapeutic dosages, there were no side effects such as mouth dryness, visual disturbances, interference with micturition, or bowel evacuation.[2]

*Dosage:* Mild to moderate cases: initially, 1 or 2 tablets four times daily. Acute or severe cases: 1 to 2 cc. (10-20 mg.) intravenously or intramuscularly every four to six hours up to maximum of 60 mg. in 24 hour period. The higher dosage range is usually required in spasm of the G.U. and biliary tract.

*Supplied:* "MUREL" Tablets — 10 mg. Valethamate bromide, bottles of 100 and 1,000. "MUREL" Injectable — 10 mg. per cc., vials of 5 cc. (Also available: "MUREL" with Phenobarbital Tablets — 10 mg. Valethamate bromide with ¼ gr. phenobarbital per tablet, bottles of 100 and 1,000.)

1. Holbrook, A. A.: Report abstracted in M. Science 4:46 (July 10) 1958. 2. Peiser, U.: Med. Klin. 50:1479 (Sept. 2) 1955. 3. Winter, H.: Medizinische, p. 1206 (Aug. 27) 1955. 4. Berndt, R.: Arzneimittel-Forsch. 5:711 (Dec.) 1955.

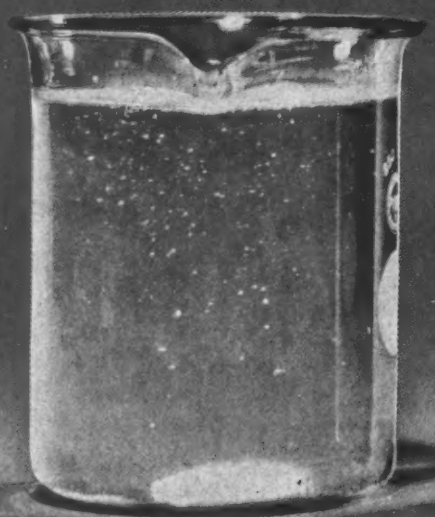
Ayerst *Ayerst Laboratories* New York 16, N. Y. • Montreal, Canada

5920

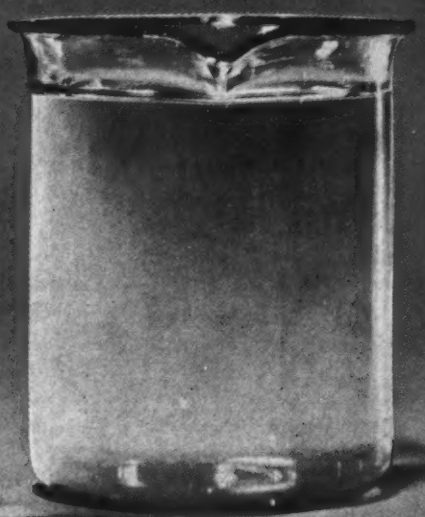
# avoid the risk of insoluble, irritating aspirin particles

Chief among the drawbacks to aspirin usage is gastric intolerance. This ranges from mild upset and "heartburn" to severe hemorrhagic gastritis.[1-10] Studies performed in conjunction with gastrectomy[4, 5] and gastroscopy[2] have shown insoluble aspirin particles firmly adherent to the gastric mucosa and imbedded between rugae. Reactions varying from mild hyperemia to erosive gastritis have been reported to occur in the areas immediately surrounding these adherent particles.[2, 4, 6] This is reported to be particularly true in patients with peptic ulcer.[4]

**CALURIN is the freely soluble, stable calcium aspirin complex. Its high solubility forestalls gastric irritation or damage**



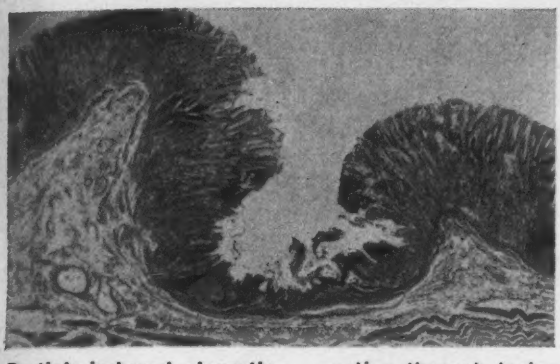
Regular aspirin crystals 24 hours after being mixed into water.



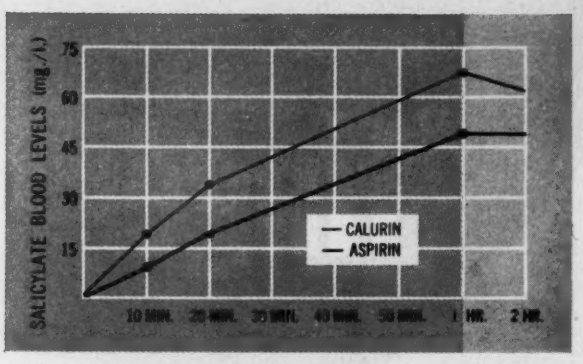
Calurin crystals in solution one minute after being mixed into water.

# CALURIN*

## STABLE SOLUBLE CALCIUM-ACETYLSALICYLATE-CARBAMIDE



**Particle-induced ulceration** — section through lesion found in gastrectomy specimen. An aspirin particle was found firmly imbedded in this undermined erosion. Such lesions may be associated with the relative insolubility of aspirin, which remains in particulate form after dispersion in gastric contents.




Calurin, being freely soluble, is promptly available for absorption into the systemic circulation. Salicylate blood levels in 12 subjects receiving both Calurin and plain aspirin were found to rise more than twice as high within ten minutes following Calurin. Also, these levels persisted higher for at least two hours.[11]

### CALURIN is the aspirin of choice, especially when high-dosage, long-term therapy is indicated:

1. High solubility forestalls gastric irritation or damage. This advantage is of special importance in arthritis and other conditions requiring high-dosage, long-term therapy.
2. Produces high salicylate blood levels rapidly for prompt analgesic, antipyretic, anti-arthritic effect.
3. Sodium-free — for safer long-term therapy.
4. Flavored: can be chewed or dissolved in the mouth without water if desired — an advantage for patients requiring aspirin administration during the night and for pediatric patients.

**Dosage:** Each tablet of Calurin is equivalent to 300 mg. (5 gr.) of acetylsalicylic acid. For relief of pain and fever in adult patients, the usual dose of Calurin is 1 to 3 tablets every 4 hours, as needed; in arthritic states, 2 or 3 tablets 3 or 4 times daily; in rheumatic fever, 3 to 5 tablets 4 or 5 times daily. For children over 6 years, the usual dose is 1 tablet every 4 hours; for children 3 to 6 years, ½ tablet every 4 hours, as required. Not recommended for children under 3.

**REFERENCES:** 1. Waterson, A. P.: Aspirin and gastric haemorrhage, Brit. M. J. 2:1531, 1955. 2. Douthwaite, A. H., and Lintott, G. A. M.: Gastroscopic observation of the effect of aspirin and certain other substances on the stomach, Lancet 2:1222, 1938. 3. Editorial Comments: The effect of acetylsalicylic acid (aspirin) on the gastric mucosa, Canad. M. A. J. 80:47, 1959. 4. Muir, A., and Cossar, I. A: Aspirin and ulcer, Brit. M. J. 2:7, 1955. 5. Muir, A., and Cossar, I. A.: Aspirin and gastric haemorrhage, Lancet 1:539, 1959. 6. Schneider, E. M.: Aspirin as a gastric irritant, Gastroenterology 33:616, 1957. 7. Bayles, T. B., and Tenckhoff, H.: Salicylate therapy in rheumatic diseases, Scientific Exhibit, Ann. Mtg. A. M. A., San Francisco, Calif., June, 1958. 8. Batterman, R. C.: Comparison of buffered and unbuffered acetylsalicylic acid, New Eng. J. M. 258:213, 1958. 9. Cronk, G. A.: Laboratory and clinical studies with buffered and nonbuffered acetylsalicylic acid, New Eng. J. M. 258:219, 1958. 10. Editorial: Aspirin plain and buffered, Brit. M. J. 1:349, 1959. 11. Smith, P. K.: Plasma concentration of salicylate after the administration of acetylsalicylic acid or calcium acetylsalicylate to human subjects, Report submitted to Smith-Dorsey from Dept. of Pharmacology, Geo. Washington Univ. School of Medicine, Washington, D. C., Sept. 5, 1958.

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**there's pain and inflammation here... it could be mild or severe, acute or chronic, primary or secondary fibrositis—or even early rheumatoid arthritis**

**more potent and comprehensive treatment than salicylate alone**

. . . assured anti-inflammatory effect of low-dosage corticosteroid[1]

. . . additive antirheumatic action of corticosteroid plus salicylate[2-5] brings rapid pain relief; aids restoration of function.

. . . wide range of application including the entire fibrositis syndrome as well as early or mild rheumatoid arthritis

**more manageable corticosteroid dosage**

. . . much less likelihood of treatment-interrupting side effects[1-6]

. . . simple, flexible dosage schedule

in any case
it calls for

# Sigmagen®

corticoid-salicylate compound

tablets

**Composition**

| | |
|---|---|
| METICORTEN® (prednisone) | 0.75 mg. |
| Acetylsalicylic acid | 325 mg. |
| Aluminum hydroxide | 75 mg. |
| Ascorbic acid | 20 mg. |

**Packaging:** SIGMAGEN Tablets, bottles of 100 and 1000.

**References:** 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

**Acute conditions:** Two or three tablets four times daily. After desired response is obtained, gradually reduce daily dosage and then discontinue.

**Subacute or chronic conditions:** Initially as above. When satisfactory control is obtained, gradually reduce the daily dosage to minimum effective maintenance level. For best results administer after meals and at bedtime.

**Precautions:** Because SIGMAGEN contains prednisone, the same precautions and contraindications observed with this steroid apply also to the use of SIGMAGEN.

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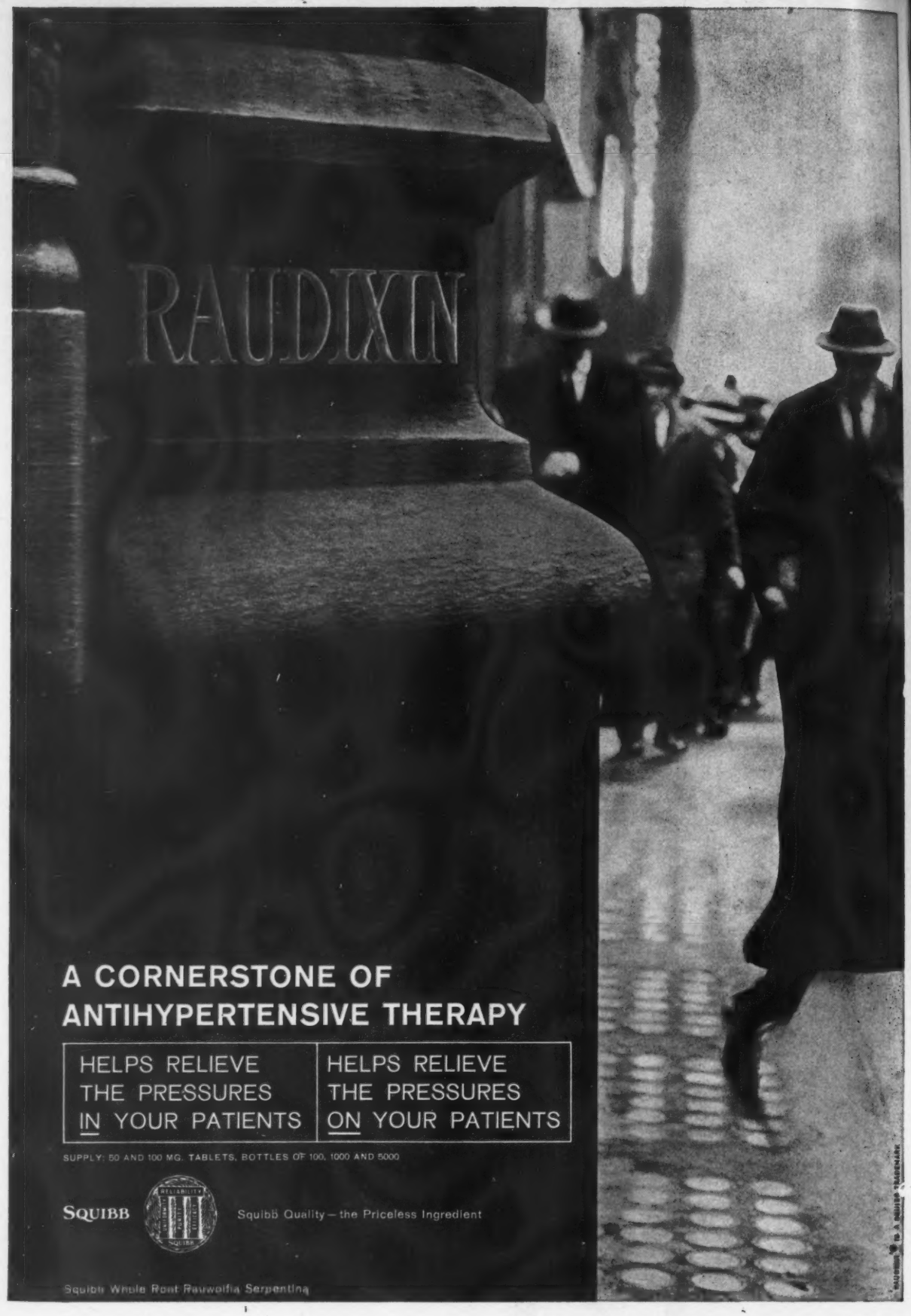
RAUDIXIN
A CORNERSTONE OF
ANTIHYPERTENSIVE THERAPY
HELPS RELIEVE
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*day and night—ulcer control with* **B.I.D.** *dosage*

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Daricon is a remarkably potent and well tolerated antisecretory/antimotility agent. Its *naturally* prolonged action provides day and night relief of pain and symptoms associated with peptic ulcer, functional bowel syndrome, biliary tract dysfunctions, and other gastrointestinal disorders characterized by spasm, hypermotility, and hypersecretion.

**EVEN REFRACTORY CASES RESPOND**

*new* **DARICON***

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References: 1. Finkelstein, M., et al.: J. Pharmacol. & Exper. Therap. 125:330 (April) 1959. 2. McHardy, G., et al.: Postgrad. Med., in press. 3. Winkelstein, A.: Amer. J. Gastroenterol., in press. 4. Finkelstein, M., et al.: Presented at Fall Meeting, Amer. Soc. Pharmacol. & Exper. Therap., 1958. 5. Leming, B.: Clin. Med. 6:423 (March) 1959.

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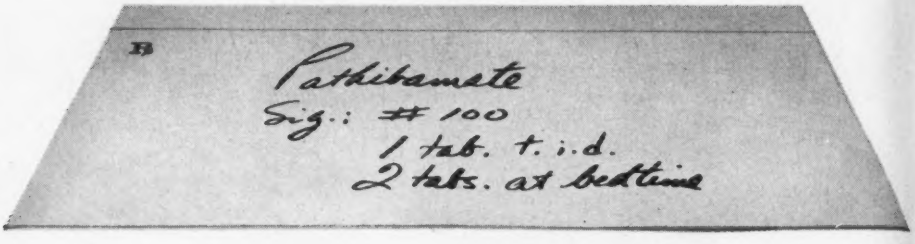
for the control of tension and G.I. trauma, many of you have been writing this prescription in increasing numbers for nearly two years...




predictable results
in the control of
tension and G.I. trauma

# PATHIB

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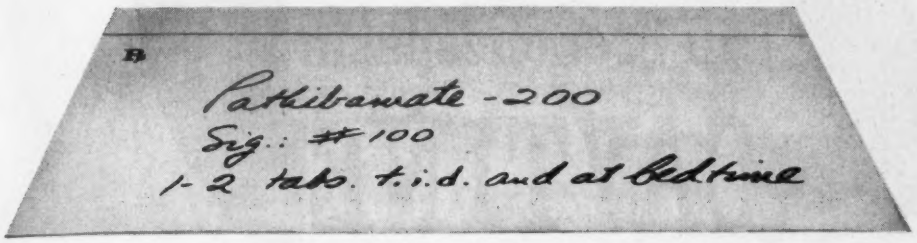


In the management of such gastrointestinal dysfunctions as duodenal or gastric ulcer, intestinal colic, spastic and irritable colon, ileitis, esophageal spasm, gastric hypermotility and anxiety neurosis with G. I. symptoms, nearly two years' experience has confirmed the clinical advantages derived from the combination of the two agents in PATHIBAMATE.

New PATHIBAMATE-200 Tablets combine Meprobamate at one-half strength, with PATHILON at full established potency.

With PATHIBAMATE-200, further individualization of treatment is facilitated in respect to both the degree of tension and associated G.I. sequelae, as well as the response of different patients to the component drugs.

**Supplied:** PATHIBAMATE-400 — Each tablet (yellow, ½ scored) contains Meprobamate, 400 mg.; PATHILON Tridihexethyl Chloride, 25 mg.
PATHIBAMATE-200 — Each tablet (white, coated) contains Meprobamate, 200 mg.; PATHILON Tridihexethyl Chloride, 25 mg.

**Administration and dosage:** PATHIBAMATE-400 — 1 tablet three times a day and 2 tablets at bedtime.
PATHIBAMATE-200 — 1-2 tablets three times a day and at bedtime. Adjust dosage to patient response.

# BAMATE® 400 200

Meprobamate with PATHILON® Tridihexethyl Chloride* LEDERLE

*PATHILON is now offered as tridihexethyl chloride instead of the iodide, since the latter may interfere with the results of certain thyroid function tests.

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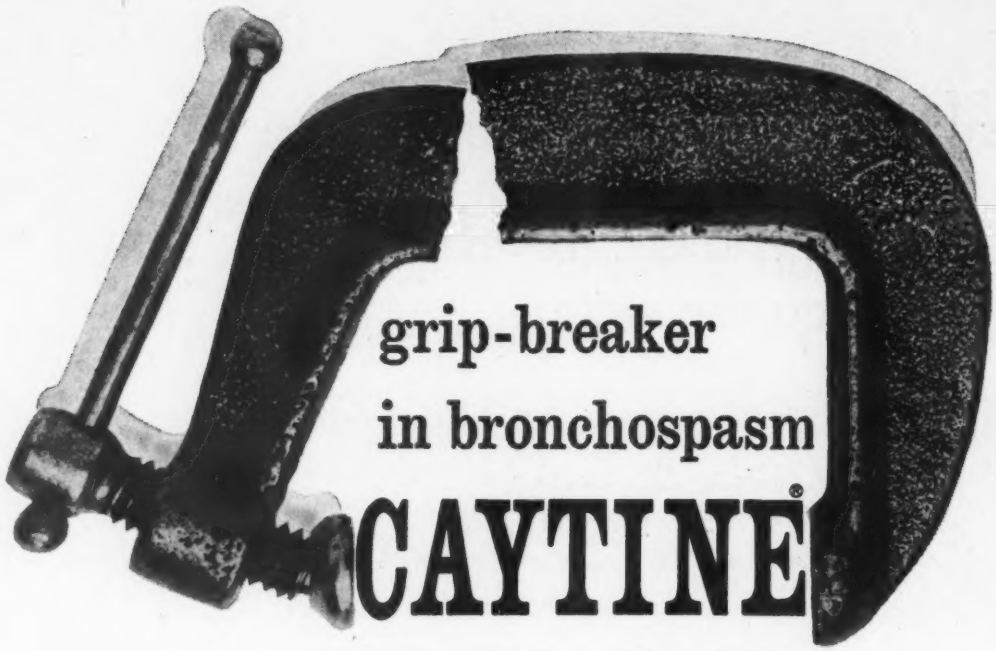

# grip-breaker in bronchospasm

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*orally, parenterally, and by inhalation*

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**three forms for individualized management:** In patients with asthma, emphysema, bronchitis, bronchiectasis, CAYTINE Tablets, Inhalation, and Injection permit the physician to determine the treatment that gives the greatest relief with fewest side effects. CAYTINE increases vital capacity more than isoproterenol.[1] In geriatric patients, CAYTINE "...was more effective than any previous medication used."[2] There are a few side effects, but no toxic reactions, with the use of CAYTINE. No elevation of blood pressure, no adverse ECG, EEG, hepatic, renal or hematologic changes have been noted. Patients may experience palpitations and anxiety and should be so warned.

(1) Leslie, A., and Simmons, D. H.: Am. J. M. Sc. *234*:321, 1957. (2) Settel, E.: Am. Pract. & Digest Treat. *8*:1249, 1957.

For additional information request Brochure No. NDA 18, CAYTINE, Lakeside Laboratories, Inc., Milwaukee 1, Wisconsin.

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The JOURNAL of the AMERICAN OSTEOPATHIC ASSOCIATION

August 1959 Vol. 58, No. 12

# UNFOLDING HORIZONS

## Presidential Address*

GEORGE W. NORTHUP, D.O.
Livingston, New Jersey

THIS PAST YEAR of our service together has provided me an opportunity which comes to few in this profession. It has given me an inside view of the osteopathic profession as it strives towards its future. As its members, you have taken me into your divisional societies, your hospitals, and your offices.

I would indeed be ungrateful if I were unappreciative of the honor and respect you have accorded me as your President. I would be irresponsible if I were unaware of the trust you have placed in me in granting me these privileges.

Twelve months ago, we agreed that this would be a year of study and appraisal of the osteopathic profession today. We would not dwell on the glories of past achievements nor daydream of a nebulous future. Rather, we would attempt an analysis of the osteopathic situation in 1959, in order better to prepare for expanded service tomorrow.

Perhaps more than anything else, we have attempted this year to arrive at the proper mood and environment for development in the osteopathic profession. I have tried to provide leadership towards this goal. Whether that leadership has been good or bad is not for me to judge. But this I know, it was sincerely and gratefully given.

This profession, as it has been in the past, should be willing to consult and cooperate with all groups working in the interest of the health care of the people. The American Osteopathic Association is but one voice in medicine today—one, however, being heard with increasing attention. It is a voice that seeks to serve rather than to dominate. Control and domination should be neither the goal nor the result of interprofessional cooperation. When they are, the word "cooperation" becomes a mockery. The A.O.A. stands ready to cooperate with all other health agencies, but seeks neither to control nor to be controlled.

The keynote of this Convention is particularly significant at this time. "Unfolding Horizons" is more than a euphonious phrase; it encompasses our whole future. It foretells our strength in development, or our shortcomings and ultimate defeat. The choice it offers is just that simple—development or defeat, success or failure.

As we have attempted to develop the fine art of thinking together, we have tried to provide guideposts that will point clearly toward what our unfolding horizons can be—if we but desire to make them so. I have repeated with perhaps a growing monotony our need for self-understanding as well as for the understanding of others.

The osteopathic profession, 1959, has much to hold in pride. When the first statements relating to osteopathic medicine were enunciated, men of myopic vision, unendowed with the power to foresee, would never have predicted that this profession would be in existence in 65 years, much less have reached the point of being responsible for the health care of millions of men, women, and children. Men who praised themselves for realistic and factual thinking would never have had the foresight to envision our present educational system, our hospitals numbering more than 400, our distinguished general practitioners and specialists bringing help and relief to those desiring our services. Men who would have preached the gospel of gloom concerning the weakness of our minority position in medicine would never have realized the challenge and strength of a minority. Fortunately, this profession had leaders in its early days who were idealistic, imaginative, and able to envision a future which is the today of osteopathic medicine. They left behind those of faint heart to wallow in the despair of their self-created gloom.

Ours must continue to be a program of reappraisal, reorientation, and creativity for the medical world of our time. We must not sell our creativity for empty acceptance. When a minority opinion achieves complete acceptance, it literally ceases to exist. It sacrifices its desire to create for the less stimulating achievement of conformity.

The science of medicine and the organization of medicine have as great a need today for a creative, aggressive minority group, as they did 65 years ago. Medicine needs ideals as well as ideas. It requires art as well as science, but perhaps more than ever before, it needs men who dare to stand up for morality both in the science and the organization of medicine. It needs men who lead as well as follow, and it needs creativity more than it requires conformity.

There are few who would have us believe that the mission of the osteopathic profession has been accomplished. The study of man and the unity of the body are ideas loudly proclaimed and accepted. Health is considered to be a positive factor rather than a mere absence of disease. Glowing lectures are given concerning the virtues of physiological and ecological medicine. Yet these high sounding statements hardly represent the majority practice of medicine as we know it. Physical medicine recognizes the importance of the musculoskeletal system, but rarely its relationship to the function of other body systems. Manipulative therapy, as developed by the osteopathic profession, is slowly achieving recognition, yet its full usefulness is

*Presented at the Sixty-Third Annual Convention of the American Osteopathic Association, Chicago, Illinois, July 13, 1959.

far from fully realized. These basic fundamentals have not been fully recognized; in fact, they have scarcely begun to receive acceptance. Few realize the importance of mobilizing natural body resources to combat disease. The therapeutic spotlight is still focused more on the resulting disease than on the developing disease process. Diagnostic technics are largely preoccupied with pathology, the debris of disease, rather than with the functional disturbance which is disease.

These were the challenges laid down for this profession 65 years ago. These challenges and these problems have not yet been completely met. If the unfolding horizons which now beckon are to be other than a mirage, our contribution to the science of medicine must continue and increase. Otherwise we shall deserve to exist only as a brief episode in the annals of medical history.

Equally great is our need to participate in the creation of a new type of medical diplomacy. Medicine has not kept pace organizationally with sociologic and economic changes. There is a growing need for what we have termed a new type of medical statesmanship: a type of leadership in medicine which suggests rather than merely objects; a type of leadership which seeks to cooperate rather than dominate.

Medicine must accept the indisputable fact that health care is everybody's business, not the sole responsibility of the provider, but the shared responsibility of the provider and the recipient. A program to develop this new type of medical leadership can well become a major deterrent to the trend toward socialized medicine.

Related to these facts is the necessity for an unbiased study of the rapidly developing third party in medicine. Third party medicine is a fact. It grows in importance with each passing year. The economic and sociologic relationships of medicine constantly change with the patterns of our time. No objective-minded physician would deny that dangers are inherent in such a program. But the program is here, and it is here to stay. The evils that may exist must be substituted by constructive beneficial features for all concerned. The mere removal of evil only creates a vacuum which another more insidious evil may fill. Consultation and free and open discussion—not destructive debate—offer the solution.

As previously noted, the specter of socialized medicine still disturbs the slumber of medicine today. Certainly the freedom of choice of physicians by the public and the freedom of choice of patients by physicians should be maintained. Yet, unless the independent physician continues to develop an obviously better, more personal type of medical care on an independent basis, the maintenance of this basic freedom becomes less than meaningful. The development of the art of medicine is the greatest argument against complete socialization of medicine; its deterioration becomes a potent argument for the abandonment of this basic freedom.

Medical organizations must do everything possible to remove the "money changers" from the halls of medicine. It is true that we make a living by what we get, but we make a life by what we give. Dedicated, unselfish service is medicine's greatest commodity in this or any other time. It is our greatest strength, its lack our greatest weakness. Medical rackets, fee splitting, excessive fees, cold, impersonal, purely "scientific" medicine untouched by man's humanity to man are more than subjects for philosophical discussion. Morality in medicine or the lack of it may be a greater influence in the future of this profession, and, in fact, of all medicine, than many of us realize. A physician's unavailability at night, his reluctance to make house calls, and his lack of personal interest in his patients, all mitigate strongly against freedom of professional function. To be sure, the press has often overdrawn these problems, but the best corrective is prevention rather than vigorous denial.

And so from the vantage point of our year's service together, these seem to be a few of the problems and challenges of the osteopathic profession in this, our day and time.

As the unfolding horizon stretches in panoramic view before us, we have both an unprecedented opportunity for service and a challenging responsibility. A famous cigarette advertiser fills the airways with the aphorism, "They said it couldn't be done." Even today, as it was 65 years ago, there are those who, burdened by the liabilities of our minority position, fail to appreciate our minority strength. Yet, from the strength of our achievements, the unfolding horizons of today can bring us into a tomorrow of service which will challenge the imagination and support of the public we serve.

This will be accomplished not by the organizationally tired, not by the blind conformist, and not by the seekers of amorphous tranquility provided by mere acceptance. These goals will be achieved by those of good faith who work with pride and believe that *it can be done.* It will be accomplished by the total mobilization of our manpower through a strong and effective national organization. It will be accomplished through the continuing development of the inspired leadership our women provide in their auxiliaries and guilds. It will be accomplished by facing our problems squarely, neither with blind optimism nor unimaginative pessimism. It will be accomplished by a full utilization of mind power and money power devoted to the welfare of all mankind.

These are the challenges that you have given me the opportunity to see. This is our hope and our trust, as the unfolding horizons of today merge with the realities of tomorrow.

All over this country, at every opportunity, I have repeated this question to you: "Are *you* part of the problem or part of the solution? Tonight, after 12 months and 60,000 miles of traveling, I know the answer. You have given me the answer in a resounding and informative manner. The majority is the solution: You are the majority and you are the solution.

On a cold Vermont night a silent attentive audience was packed into the small auditorium of a New England college, as if to form a backdrop. The venerable white-haired Robert Frost, dean of American poets, recited his concluding poem. The poem, "Stopping by Woods on a Snowy Evening," ends like this:

> "The woods are lovely, dark and deep.
> But I have promises to keep,
> And miles to go before I sleep.
> And miles to go before I sleep."

My friends, before our mission is complete, we, too, have miles to go before we sleep.

104 S. Livingston Ave.

# LUMBOSACRAL zygapophyseal tropism and the RADICULODISK syndrome*

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IN REVIEW OF the literature and consultation with orthopedic surgeons, it appears evident that the conditions predisposing to "ruptured disk" are either unknown or are dependent on a number of contributing factors. That the herniated disk syndrome is relatively common is evident from the reports of radiologists, neurologists, neurosurgeons, orthopedic surgeons, and osteopathic physicians in general.

Most commonly the provisional diagnosis of ruptured disk in the lumbar area is made when the patient reports low-back pain associated with unilateral or bilateral leg pain of sciatic nerve distribution. Presumably this "typical" situation is due to compression of a lumbosacral nerve root by a herniated or protruding nucleus pulposus of the lumbar intervertebral disk at or near the point of exit of the nerve from the spinal canal via the intervertebral foramen.

The evident disabling effects of nerve root damage (compression and/or irritation) caused by such ruptured intervertebral disks is termed by Eaton[1] the "radiculodisk complex or problem."

The observations following diagnosis and treatment of nearly 2,000 cases of the radiculodisk syndrome at the Hospitals of the Philadelphia College of Osteopathy has prompted the hypothesis that a major cause of herniation of a lumbar intervertebral disk is the inherent anatomic instability of the lower lumbar and lumbosacral vertebral joints. Twofold therapy consisting of excision of the offending disk herniation followed by stabilization by arthrodesis of the affected spinal area has yielded results which support this theory.

## Lumbosacral instability

Numerous investigators[2-6] have studied and reported factors related to lumbar and lumbosacral instability, although none directly relate specific types or levels of instability to the causation of ruptured disks and the site of nerve-root compression.

The spatial relationships of the lumbar and lumbosacral facets have been observed for some time. The general consensus seems to indicate that the "normal" or average lumbar arthrodial joints are directed in a sagittal or anteroposterior plane. This type of joint relationship is considered relatively stable, allowing for minimal lateral flexion or rotation. Commonly, however, the lumbosacral arthrodial joints lie in a relatively coronal, frontal, or transverse plane, which allows for extreme mobility of the contiguous vertebrae and hence a relative instability. Such an anatomic arrangement at this site would allow motion in all axes; that is, flexion, extension, lateral flexion, and torsion or rotation.

## Zygapophyseal tropism

Excluding the less prevalent variations or anomalies of the lumbosacral area of the spine, such as spondylolysis, spondylolisthesis, hemivertebra, "congenital" fractures of articular processes, and gross differences in size of the articular areas, the most impressive deformity is that of asymmetry of articular facet alignment. In the extreme degree of asymmetry, one articular facet may be present in the sagittal plane while its contralateral counterpart may lie in the coronal plane at the same segmental level. McGregor[5] speaks of this situation as "Putti's anomaly of articular tropism," while Freiberg[3] names it "zygapophyseal tropism."

It has been observed that in addition to facet facings being either sagittal or coronal (symmetrical or asymmetrical), a number of arthrodials may be classified as being in an intermediate or oblique axis (also symmetrical or asymmetrical). It is assumed that all such deviations from the typical sagittal lumbar joint would result in instability proportionate to the degree of deviation away from the anteroposterior plane.

It is evident that the greater the motion allowed, through instability at a given arch articulation, the greater the stress placed on the supporting soft tissues and especially the ligaments. The posterior longitudinal ligament and the fibrocartilaginous annulus fibrosus, in addition to the articular capsular ligaments and the ligamenta flava, would be called on to receive a greater stress, with ultimate wearing, tearing, hypertrophy, or rupture. The result would be a decompensated spinal instability.

Not all individuals demonstrating articular asymmetry have clinical symptoms. The condition has been found in many instances where roentgenograms have been made for reasons other than lumbar vertebral studies. Such cases should be classified orthopedically as compensated spinal instability. Symptoms appear only when decompensation occurs. When the supporting and adjacent structures, such as ligaments, disks, and nerve roots, become involved, clinical and roentgenographic studies bring to light the underlying articular asymmetry and resultant instability. The detailed history and physical examination will often show that lateral flexion and torsion maneuvers, in particular, have preceded and aggravated the symptoms.

*Submitted to the faculty of the Philadelphia College of Osteopathy in partial fulfillment of the requirements of the degree of Master of Science, April 1, 1958.

## Spatial relationships of facets

In identifying the spatial alignment of the arch articulations of the lumbar and lumbosacral spine, Ferguson[3] has pointed out that the most adequate and reliable method is the anteroposterior roentgenographic projection of the area studied. The film shows increasing overlapping of articular surfaces as the plane of the joint inclines away from the typical sagittal or lumbar-type facet arrangement.

Lewin[4] quotes a study by Brailsford of 3,000 roentgenographic films of the lumbosacral spine, in which he found 57 per cent of lumbosacral facets lying in a sagittal plane, 12 per cent in a coronal plane, and 31 per cent in a mixed or asymmetric arrangement.

## Survey of hospital cases

The study reported here consists of a survey of 100 recent consecutive cases of radiculodisk syndrome in which the diagnostic studies included Diodrast nucleus opacification of the lower three lumbar intervertebral disks, and ultimate surgical treatment. Tracings were made from anteroposterior roentgenograms of the lower two lumbar and lumbosacral articulations, to demonstrate their spatial relationships. Tabulations were made of the clinical and surgical evidences of nerve-root involvement and the findings relative to site and level of disk herniations, radicular pathologic conditions, and joint instability. In assessing the degree of instability on each side, the more the joint tended toward the coronal type, the more unstable it was considered to be. Instability above and below segments involved in the radiculodisk complex was frequently noted. Representative tracings are seen in Figures 1 to 12.

Herniations of the nucleus pulposus were found at the fourth and fifth lumbar levels in 28 cases; herniation at the fifth lumbar level alone in 35 cases; and herniation at the fourth lumbar level alone in 33 cases (Table I). Herniations were demonstrated in several cases at the second and third lumbar levels, but the number was not statistically significant. Four per cent of cases demonstrated mild disk degeneration with no gross herniation. Nerve-root involvement with radicular symptoms was found on the left in 66 per cent and on the right in 34 per cent (Table II). In instances where pain was bilateral, the side with the more severe

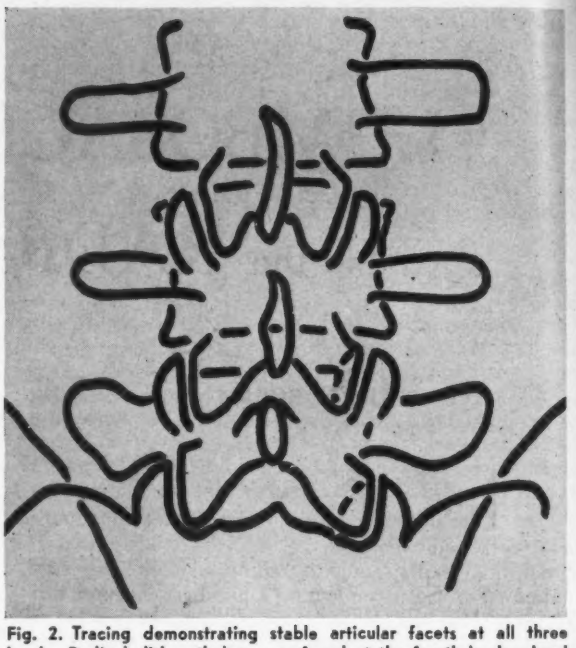

**Fig. 2. Tracing demonstrating stable articular facets at all three levels. Radiculodisk pathology was found at the fourth lumbar level on the right.**

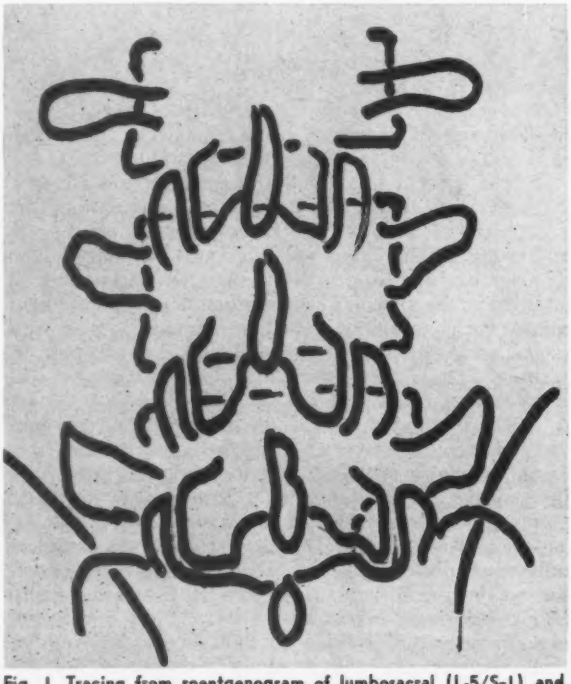

**Fig. 1. Tracing from roentgenogram of lumbosacral (L-5/S-1) and lower two lumbar (L-4/L-5 and L-3/L-4) zygapophyseal joints demonstrating relatively stable sagittal (lumbar-type) alignment. Radiculodisk pathology was found at the fifth lumbar level on the left.**

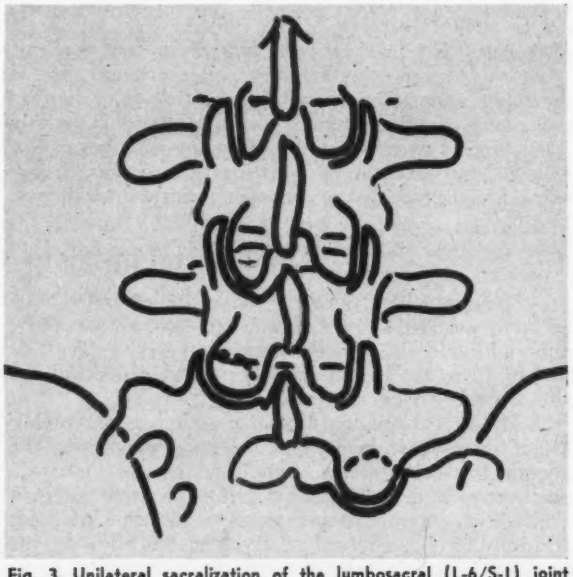

**Fig. 3. Unilateral sacralization of the lumbosacral (L-6/S-1) joint on the right, with a coronal joint on the left at the sixth lumbar-first sacral joint and on the right at the fifth and sixth lumbar joint. Radiculodisk pathology was seen at the sixth lumbar level, right.**

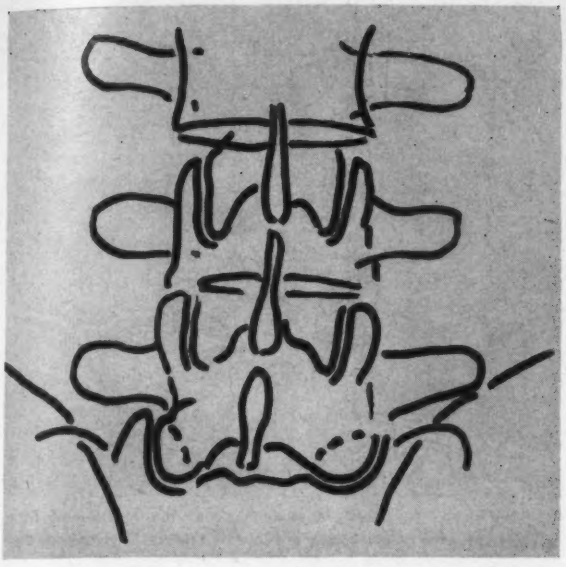

**Fig. 4. Zygapophyseal tropism is demonstrated with instability on the left at the lumbosacral joint. Radiculodisk pathology was found at operation at the fifth lumbar level on the left.**

pain is indicated in this study. It is interesting to note that the ratio of incidence of unilateral involvement on the left as compared to the right was 2 to 1. No explanation of this fact, other than articular instability, is attempted.

Complete excision of the herniated disks, followed by stabilization of the lower two lumbar and the lumbosacral segments by facet arthrodesis, was performed in all cases. Every case showed some degree of asymmetry at one or more levels.

It should be noted that this small series of cases represents a segment of the population with decompensated lumbar and lumbosacral instability. No so-called normal spines were studied for comparison. Presumably the Brailsford study mentioned by Lewin[4] represents a random sampling, including many compensated unstable backs which were symptom-free.

TABLE I.—TABULATION OF LEVELS OF INTERVERTEBRAL DISK HERNIATIONS IN 100 CASES

| Level | Cases |
|---|---|
| L-4 | 33 |
| L-5 | 35 |
| L-4 and L-5 | 28 |
| No herniation | 4 |
| Total | 100 |

TABLE II.—SITE OF NERVE ROOT INVOLVEMENT IN 100 CASES

| Site | Cases |
|---|---|
| Left | 66 |
| Right | 34 |
| Total | 100 |

TABLE III.—CASES OF HERNIATION AT THE LUMBOSACRAL LEVEL

| Type of articulation | L-5 disk herniation | No L-5 disk herniation |
|---|---|---|
| Unstable (89) | | |
| Asymmetry (79) | 60 | 19 |
| Bilateral coronal (10) | 3 | 7 |
| Stable (11) | 0 | 11 |
| Total | 63 | 37 |

*Lumbosacral level.*—Of the cases studied, 89 per cent showed instability at the lumbosacral level; 79 per cent of these presented varying degrees of asymmetry, 10 per cent showed bilateral coronal facet alignment, and 11 per cent were considered stable sagittal joints bilaterally at this level (Table III).

Gross fifth lumbar disk herniations with first sacral nerve-root involvement were noted at the time of surgery in 63 cases, 60 of which were associated with asymmetry; in the remaining 3 cases, there were associated bilateral coronal facets.

With disk herniations at the fifth lumbar level, the

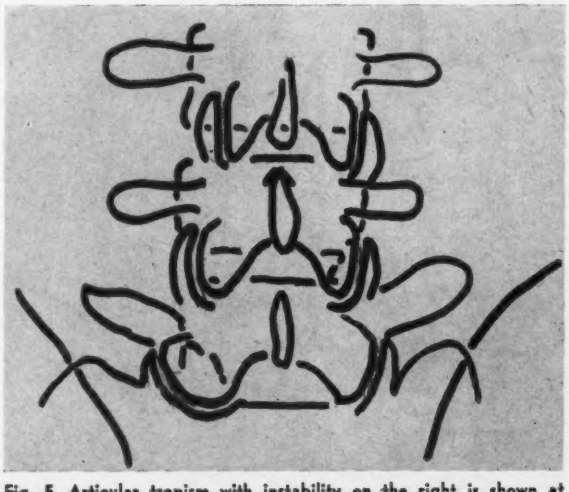

**Fig. 5. Articular tropism with instability on the right is shown at lumbosacral joint. Radiculodisk pathology was found at the fourth lumbar level on the right.**

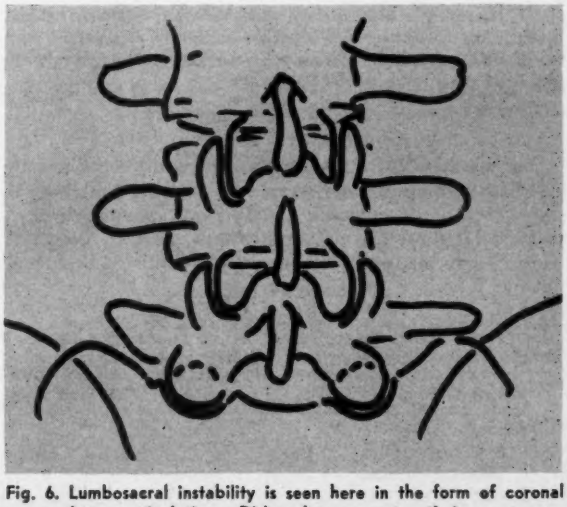

**Fig. 6. Lumbosacral instability is seen here in the form of coronal or sacral-type articulations. Disk and nerve root pathology was seen at the fourth and fifth lumbar levels on the left.**

60 asymmetrical cases showed greater instability on the left (39 cases) than on the right (21 cases). Nerve-root involvement and disk herniation occurred predominantly on the side of greater instability at this level. Instability on the left (39 cases) was associated with 24 cases of radiculodisk involvement on the left and 15 cases on the right. Similarly, instability on the right (21 cases) was associated with disk and root involvement on the right in 15 cases and 6 cases on the left. With bilateral coronal instability, 2 cases showed involvement on the right side and 1 case on the left (Table IV.)

TABLE IV.—RADICULODISK INVOLVEMENT AT THE LUMBOSACRAL LEVEL

| Joint alignment | Site of involvement | |
|---|---|---|
| | Right | Left |
| Unilateral instability (60) | | |
| Instability on right (21) | 15 | 6 |
| Instability on left (39) | 15 | 24 |
| Bilateral instability (3) | 2 | 1 |
| Stable | 0 | 0 |

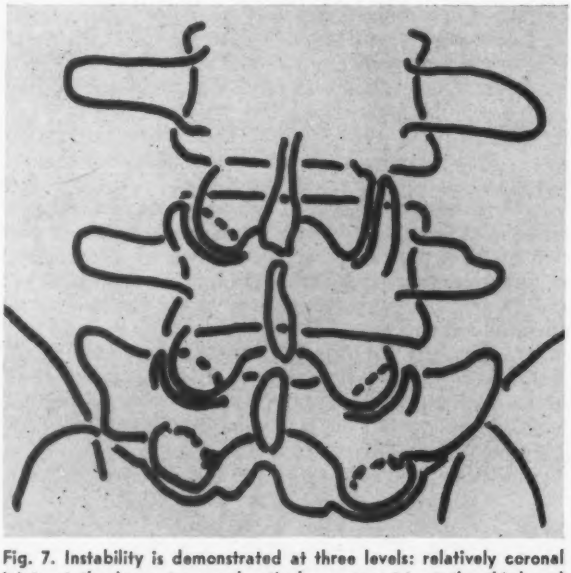

**Fig. 7. Instability is demonstrated at three levels: relatively coronal joints at the lower two; and articular asymmetry at the third and fourth lumbar joint. The radiculodisk complex involved the fourth and fifth lumbar levels on the right.**

*Fourth and fifth lumbar-joint level.*—At the fourth and fifth lumbar joints 84 per cent of the cases showed some degree of instability: 81 were asymmetric, 3 showed bilateral coronal type joints; and 16 per cent were clearly bilaterally stable sagittal joints at this level (Table V).

TABLE V.—CASES OF HERNIATION AT THE L-4/L-5 LEVEL

| Type of articulation | L-4 disk herniation | No L-4 disk herniation |
|---|---|---|
| Unstable (84): | | |
| Asymmetry (81) | 55 | 26 |
| Bilateral coronal (3) | 3 | 0 |
| Stable (16) | 3 | 13 |
| Total | 61 | 39 |

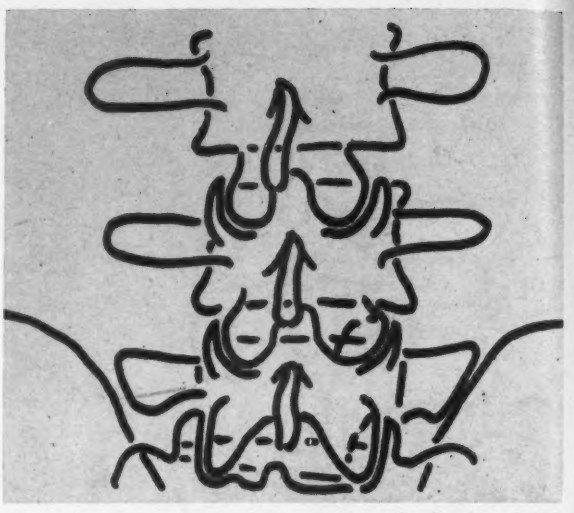

**Fig. 8. Articular tropism is demonstrated at the fourth and fifth lumbar joint. The joints above and below appear relatively stable. The herniation was found at the fourth lumbar level on the right.**

Gross fourth lumbar disk herniations with fifth lumbar nerve-root involvement were seen at operation in 61 cases, of which 55 demonstrated asymmetry, 3 showed bilateral coronal-type instability, and 3 showed herniations in the absence of instability, that is, bilateral sagittal facets.

With disk herniations at the fourth lumbar level, the 55 asymmetrical cases showed greater instability on the left (36 cases) than the right (19 cases). Radiculodisk involvement appeared less related to the site of instability at this level than at the fifth lumbar level. Instability on the left (36 cases) was associated with root and disk involvement on the left in 22 cases and on the right in 14 cases; instability on the right (19 cases) was associated with almost equal bilateral disk and nerve-root involvement—9 cases on the right and 10 cases on the left. The bilateral instability was associated with involvement on the right in 1 case and on the left in 2 cases. Stable joints were found with one herniation on the right and two on the left (Table VI).

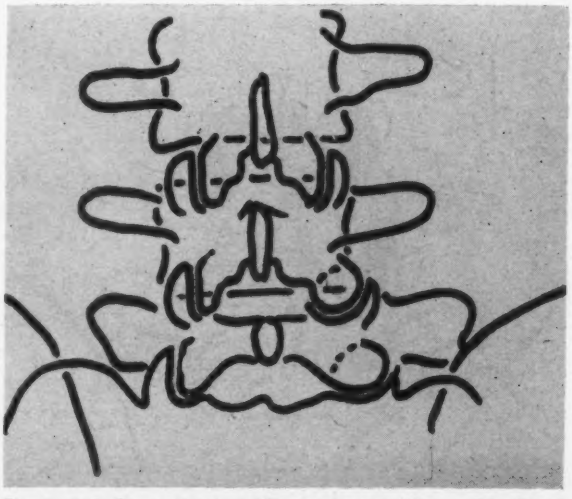

**Fig. 9. Articular asymmetry with greatest instability on the left at fourth and fifth lumbar and lumbosacral joints is shown. Radiculodisk pathology was located at the fourth lumbar level on the right.**

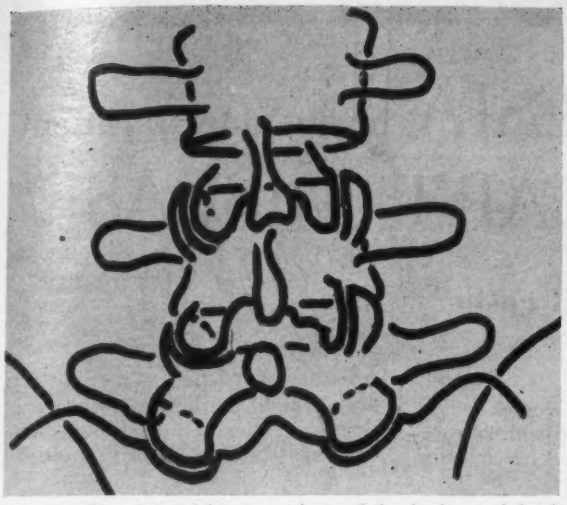

**Fig. 10. Bilateral instability is evident at the lumbosacral level. Zygapophyseal tropism, with instability on the right, is found at the next level. Radiculodisk involvement was found surgically at fifth lumbar level on the right.**

TABLE VI.—RADICULODISK INVOLVEMENT AT THE L-4/L-5 LEVEL

| Joint alignment | Site of involvement | |
|---|---|---|
| | Right | Left |
| Unilateral instability (55): | | |
| Instability on right (19) | 9 | 10 |
| Instability on left (36) | 14 | 22 |
| Bilateral instability (3) | 1 | 2 |
| Stable (3) | 1 | 2 |

## Conclusion

There appears to be an etiologic relationship between anatomic factors predisposing to instability of the lower lumbar and lumbosacral spine and the subsequent production of the radiculodisk syndrome. It is proposed that while the compensated unstable low back may remain symptom-free for an indefinite period, the decompensated back may result in the typical clinical picture of the herniated lumbar-disk syndrome with nerve-root involvement. Factors not considered in this report, such as trauma, nutrition, aging, do contribute further to the pathologic process discussed.

It is further suggested that in the clinical problem of low-back instability, suitable anteroposterior roentgenograms of the lumbosacral area may enable the physician to predict, with reasonable accuracy before symptoms appear, the site of production of the radiculodisk syndrome on the side of greater instability. For the next lumbar segment above the lumbosacral area, however, the prediction might not be so accurate. Conclusions based on the small series reported here must be considered suggestive only. Further studies would, indeed, be enlightening.

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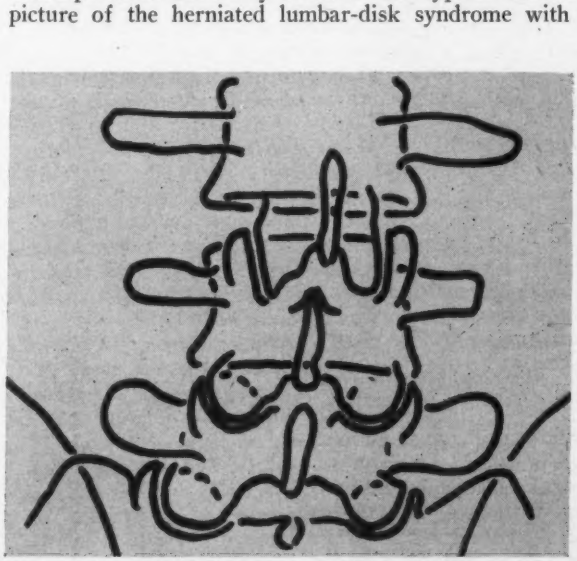

**Fig. 11. Bilateral (oblique or intermediate) instability is seen at the two lower levels. Disk herniations were found at both levels.**

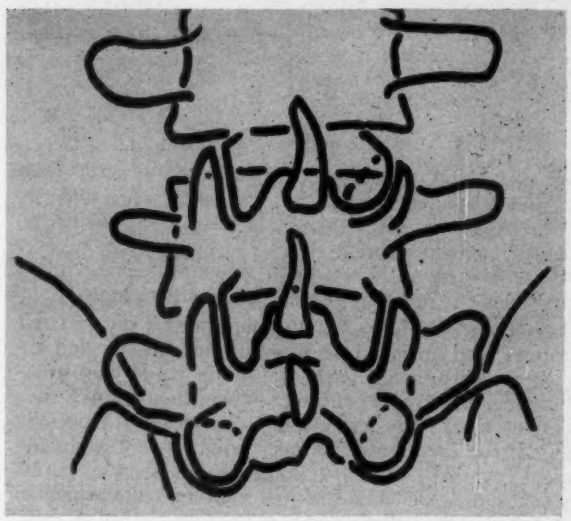

**Fig. 12. A stable joint at fourth and fifth lumbar level is shown between two unstable levels. Bilateral coronal lumbosacral instability and zygapophyseal tropism at the third and fourth lumbar joint is noted. The radiculodisk pathology was located at fifth lumbar on the right.**

*Acknowledgements*

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## *References*

1. Eaton, J. M.: Radiculodisk problem. J. Am. Osteop. A. 56:471-475, April 1957.

2. Ferguson, A. B.: Roentgen diagnosis of extremities and spine. Ed. 2. Paul B. Hoeber, New York, 1949.

3. Freiberg, J. A.: Congenital deformities of spine, in Surgical treatment of motor-skeletal system, edited by F. W. Bancroft and H. C. Marble. Ed. 2. J. B. Lippincott Co., Philadelphia, 1951, pp. 18-22.

4. Lewin, P.: Back and its disk syndromes including injuries, diseases, deformities, and disabilities, with notes on pelvis and coccyx. Lea & Febiger, Philadelphia, 1955.

5. McGregor, A. L.: Synopsis of surgical anatomy. Ed. 8. Williams & Wilkins Co., Baltimore, 1958.

6. Meschan, I.: Roentgen signs in clinical diagnosis. W. B. Saunders Co., Philadelphia, 1956.

# ANESTHESIA in the elderly patient with HEART DISEASE*

## Review of 143 cases*

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THE NUMBER OF patients suffering from acquired cardiovascular derangements who undergo elective or emergency surgery is steadily increasing because of the longer survival rate of the population. This trend toward an ever-aging population entails more problems for the surgeon and the anesthesiologist.

It has been known for some time that the geriatric patient with cardiac disease withstands surgery and anesthesia surprisingly well. It is my belief that anesthesia is not contraindicated by existing disease in a patient whose physical status is poor. This especially holds true in essential surgery where every postponement could be a step closer to death. As Mushin[1] points out, it hardly benefits a patient with an acute intestinal obstruction to delay operation because he has a weak heart.

In the past several years some interesting papers have been published outlining the various phases in the management of this type of patient.[2-10] The reports led to the conclusion that criteria for evaluating a patient's risk and eventual outcome are far from ideal. Laboratory findings cannot be substituted for the application of diagnostic acumen and a trained mind. Rather, such findings support clinical judgment.

The purpose of this paper is to review the results of anesthesia in 143 unselected patients treated surgically at Riverside Hospital between February 1954 and February 1958. The patients were over 65 years of age, and all showed evidence of acquired cardiovascular disease. The series involved a wide variety of emergency or elective surgical procedures, as shown in Table I.

Of the 143 patients, 107 had hypertensive heart disease, 28 had arteriosclerotic heart disease, 3 had had previous episodes of coronary occlusion, 3 had rheumatic heart disease, and 2 had had episodes of congestive heart failure. Of the 10 deaths, none could be ascribed to the anesthesia (Table II). The anesthetic and surgical morbidity is shown in Table III.

All of the standard inhalation agents were utilized, in combination with an ultrashort-acting intravenous barbiturate induction, with the various curariform agents used for muscular relaxation when needed. Regional anesthesia was used when specifically indicated. General anesthesia was kept in the lightest plane consistent with the surgical procedure. Tracheal intubation was frequently performed, especially when it was felt

*Presented at the annual meeting of the American Osteopathic College of Anesthesiologists, Boston, October 28, 1958.

TABLE I—OPERATIVE PROCEDURES

| | | |
|---|---|---|
| *Head and neck* | | *10* |
| Thyroidectomy | 3 | |
| Neck tumor | 2 | |
| Teeth extraction | 2 | |
| Bilateral ethmoidectomy | 1 | |
| Multiple tumors of face | 1 | |
| Tonsillectomy and pharyngeal biopsy | 1 | |
| *Upper abdominal* | | *36* |
| Cholecystectomy | 12 | |
| Cholecystectomy with choledochostomy | 18 | |
| Subtotal gastrectomy | 6 | |
| *Lower abdominal* | | *9* |
| Total abdominal hysterectomy | 4 | |
| Appendectomy | 2 | |
| Bowel resection | 2 | |
| Umbilical hernioplasty | 1 | |
| *Orthopedic* | | *8* |
| Hip pinning | 5 | |
| Lumbar laminectomy | 1 | |
| Fracture of patella | 1 | |
| Fracture of ankle | 1 | |
| *Extraperitoneal* | | *56* |
| Inguinal hernioplasty | 20 | |
| Cystoscopy | 16 | |
| Vaginal plastic | 5 | |
| Prostatectomy | 4 | |
| Ureterolithotomy | 4 | |
| Cystostomy | 3 | |
| Urinary bladder resection | 2 | |
| Vaginal hysterectomy | 2 | |
| *Miscellaneous* | | *24* |
| Combined hemorrhoidectomy | 9 | |
| Dilatation and curettage with cervical biopsy | 5 | |
| Circumcision | 2 | |
| Radical mastectomy | 2 | |
| Subtotal mastectomy | 1 | |
| Lumbar sympathectomy | 1 | |
| Excision of nevus of cheek | 1 | |
| Saphenous vein ligation | 1 | |
| Excision of tumor of anterior abdominal wall | 1 | |
| Incision and drainage of anterior abdominal wall abscess | 1 | |

TABLE II—MORTALITY

| Age and sex | Preoperative complication | Operation | Anesthesia | Result |
|---|---|---|---|---|
| 70 (M) | Arteriosclerotic heart disease; extrasystoles | Bilateral inguinal hernioplasty; abdominal exploration; appendectomy, pancreatic biopsy | Thiopental sodium, ether, nitrous oxide and oxygen; orotracheal | Died 5th postoperative day; coronary occlusion; autopsy refused |
| 73 (M) | Hypertensive heart disease | Suprapubic prostatectomy | Fractional spinal; procaine | Died 16th postoperative day; autopsy: acute pancreatitis |
| 66 (M) | None (clinically) | Excision of urinary bladder | Fractional spinal; procaine | Died 7th postoperative day; electrolyte imbalance |
| 67 (F) | Hypertensive heart disease | Cholecystectomy | Thiopental sodium, nitrous oxide and oxygen; succinylcholine; orotracheal | Died 24 hours postoperatively; peritonitis and carcinoma |
| 69 (F) | Hypertensive heart disease | Subtotal gastrectomy; splenectomy | Thiopental sodium, ether, nitrous oxide and oxygen, succinylcholine; orotracheal | Died 48 hours postoperatively; autopsy refused; myocardial failure |
| 65 (M) | Hypertensive heart disease | Choledochostomy; cholecystectomy | Thiamylal sodium, nitrou oxide and oxygen, succinylcholine; orotracheal | Died 6th postoperative day; myocardial failure; autopsy refused |
| 65 (M) | Hypertensive heart disease | Subtotal gastrectomy; gastrojejunostomy | Thiopental sodium, nitrous oxide and oxygen, succinylcholine; orotracheal | Died on 21st postoperative day; atrial fibrillation, pulmonary edema, repeated episodes of cardiac failure; autopsy: pulmonary abscess |
| 72 (M) | Hypertensive heart disease; previous congestive heart failure | Suprapubic prostatectomy | Continuous catheter, caudal; 2% procaine | Died suddenly on 17th postoperative day while preparing to go home; acute pulmonary edema and myocardial failure |
| 67 (M) | None (clinically) | Excision of urinary bladder | Nitrous oxide, thiopental sodium, succinylcholine; orotracheal | Died 10th postoperative day; uremic coma; autopsy refused |
| 70 (M) | Arteriosclerotic disease | Suprapatellar amputation | Refrigeration; cyclopropane | Died 13th postoperative day; uremia and cerebellar abscess |

that the patency of the airway might be jeopardized. The agents and technics, which were individualized for each patient, are shown in Table IV.

Safety in anesthesia depends on various factors, first of which is complete knowledge of the basic anesthetic principles; assurance of proper oxygen and carbon dioxide exchange to prevent hypoxia, and maintenance of sufficient aortic pressure to allow proper coronary flow to the myocardium. With regard to carbon dioxide exchange in inhalation anesthesia, there is some doubt as to the efficiency of absorption technics except with the use of cyclopropane, and even then it should be used only for short periods during a procedure, changing to a semiclosed system with nitrous oxide and oxygen at regular intervals. In the latter technic there is less tendency for carbon dioxide to accumulate. Anesthesiologists sometimes place too much reliance on carbon dioxide absorption, which often proves inefficient. In my opinion, the aged cardiac patient fares better with a technic involving either partial rebreathing or no rebreathing. Absorption anesthesia may have been oversold, although this belief is contrary to the teaching of most authorities.[11]

It should be remembered that the hypercapnea often associated with a closed system of anesthesia may be responsible for deleterious cardiac reflexes and other circulatory disturbances.[12-14] Even with the occasional use of an apnea technic there is no necessity to use a completely closed system. Also, respiratory assistance is mandatory in all inhalation anesthesia.[15]

In this clinical series there were 3 patients with valvular heart disease, 2 of whom had mitral stenosis. In this condition, tachycardia is known to be a factor in precipitation of pulmonary edema, especially if the patient is elderly. An increase in cardiac rate leads to a shortened diastolic time—that is, a diminution of the time available for blood flow through the mitral valve —and results also in a decrease in time available for filling of the coronary arteries.[16] It is for this reason that I do not use atropine sulfate in the premedication of these or other cardiac patients. Rather, I use scopolamine—not only for its sedative, amnesic, and drying effect, but because it does not have a tendency to produce tachycardia. With small doses, varying from 0.32 mg. to 0.43 mg., no delirium has been experienced. It is interesting to note the variation in opinion among authorities. Pender[17] uses either small doses of atropine or none at all, and reports that when atropine has not been administered preoperatively, no excessive secretions have resulted even during ether anesthesia. Keown,[18] on the other hand, prefers to use atropine.

At no time are narcotics routinely used in the preanesthetic medication. This medication consists of an individualized dose of secobarbital with or without promethazine (Phenergan). Meperidine hydrochloride, 25.0 to 50.0 mg., is used only in the presence of pain. Patients are always seen personally for a preanesthetic evaluation. The procedure for the anesthesia is carefully and thoroughly explained, and unhurried attempts are made to gain the confidence of the patient. If a regional anesthetic is to be used, or mask induction, this also is explained. The results of explaining mask induction are manifested in the absence of complications such as laryngospasm, tachycardia, breath-holding, and vomiting during the induction procedure.

It was mentioned earlier that hypoxia must be prevented. This statement needs clarifying, since conditions are possible in which hypoxia may occur in the presence of 100 per cent oxygen. The oxygen must reach the pulmonary alveoli, then the blood stream, and finally the tissues. Saklad[19] classifies the various types of hypoxia as follows: *stagnant,* resulting from circulatory failure; *hemoglobic,* from unreplaced blood loss; *tidal,* from a decreased respiratory exchange caused by

TABLE III—MORBIDITY

| Age and sex | Preoperative complication | Operation | Anesthesia | Result |
|---|---|---|---|---|
| 67 (F) | Hypertensive arteriosclerotic heart disease | Exploratory; cholecystectomy | Nitrous oxide-Surital, succinylcholine; orotracheal | Pulmonary edema on operating table; aspirated; positive pressure breathing; ganglionic blockade |
| 67 (F) | Arteriosclerotic heart disease | Inguinal hernioplasty | Subarachnoid; tetracaine | At end of operation, chest pain with drop in blood pressure; treated with levarterenol, and returned to room in satisfactory condition. Immediate ECG showed coronary insufficiency; flattened T-waves |
| 66 (F) | Hypertensive heart disease | Cholecystectomy, appendectomy | Nitrous oxide-Surital, succinylcholine; orotracheal | Drop in blood pressure on being transferred to carrier; pale. ECG showed coronary insufficiency |
| 79 (M) | Hypertensive heart disease | Choledochostomy, cholecystectomy appendectomy | Nitrous oxide-Surital, ether-succinylcholine; orotracheal | Pale, hypotensive; sweating on return to room; no chest pain. ECG showed myocardial infarction |
| 65 (F) | Arteriosclerotic heart disease | Cholecystectomy | Nitrous oxide-Evipal, succinylcholine; orotracheal | Atrial fibrillation 36 hours postoperatively. Treated with intravenous lanatoside C |
| 69 (M) | Hypertensive arteriosclerotic heart disease | Cholecystectomy | Nitrous oxide-Evipal, succinylcholine; orotracheal | Acute myocardial infarction 48 hours postoperatively |
| 74 (M) | None | Subtotal gastrectomy, gastrojejunostomy | Nitrous oxide-Surital, ether-succinylcholine; orotracheal | Following suction at end of surgery, became cyanotic; bronchoscopy performed, and large plugs of mucus suctioned from right main bronchus. Sent to room in satisfactory condition following reintubation of trachea |

subarachnoid block and overdosage of drugs; and *alveolar,* from pulmonary fibrosis. These conditions may be circumvented in several ways. In my practice, 100 per cent oxygen is always administered by mask prior to the induction of general anesthesia, especially if the endotracheal route of administration is selected. The patient anesthetized by the subarachnoid technic is given 100 per cent oxygen by mask, extreme care being taken not to overdose or depress the patient in any way. Accomplishment of these aims is not always easy, and even the most experienced anesthesiologist is at times taxed to the full extent of his ability.

In the postanesthetic phase hypoxia is a grave danger, and often occurs with improper removal of an intratracheal tube. The anesthesiologist should strive to have the patient awake and the tube removed at the end of the surgical procedure. The procedure is carried out in this way: As the skin incision is being closed, or when the patient is in the supine position, the pharynx is suctioned thoroughly while the patient is receiving 100 per cent oxygen through the intratracheal tube. Then the adapter to the tube is removed, a suction catheter of the proper size is inserted, "pinched off" down to the carina, and slowly withdrawn with intermittent suction. Oxygen by mask is then given for a few moments through the tube, following which the suction catheter is reintroduced through the intratracheal tube, and with intermittent suction both the catheter and the intratracheal tube are removed. Mask oxygen is then given until the skin wound is closed. Several objectives are thus gained: hypoxia is obviated, and excessive secretions are removed; equally important, diffusion anoxia is prevented,[20] if nitrous oxide has been the principal agent used, with either controlled or assisted respiration, especially in a closed system.

Postoperative oxygen administration is of the utmost importance. When the patient is placed on the carrier for transport to his room he receives oxygen by mask from a resuscitation unit attached to the carrier. In bed he receives 100 per cent oxygen by BLB mask at a flow rate of 12 to 14 liters per minute. This is mandatory if hypotension has been present. The inhalation of 100 per cent oxygen produces a fall in cardiac output in normal individuals because of a decrease in cardiac rate.[21-22] It has been shown by Eckenhoff[23] that when a heart is under strain, with an elevated rate and possibly suboxygenation of the arterial blood, the reduction in cardiac output following 100 per cent oxygen administration may exceed the 10 per cent found in normal individuals. The reduction in cardiac work plus the increase in arterial oxygen tension thus would be additive in minimizing or preventing permanent myocardial damage by simultaneously decreasing oxygen demand and increasing oxygen supply.

In the postoperative recovery room the cardiac patient is watched very carefully, and all the vital signs are charted every 5 minutes for 60 to 90 minutes, or longer if necessary. A gradual rise in pulse rate is an indication for the nurse to call for assistance, as is the sudden presence of pallor and sweating, with or without chest pain. In this series of cases 2 patients exhibited postanesthesia pallor, sweating, hypotension, elevated pulse rate, and *no chest pain;* electrocardiographic examination showed T-wave changes indicative of coronary occlusion. These silent occlusions do occur and this possibility should be kept in mind.

Wasserman, Bellet, and Saichek[24] have emphasized

TABLE IV—AGENTS AND METHODS UTILIZED

| | No. cases |
|---|---|
| Barbiturate induction,* nitrous oxide and oxygen, curariform agents† | 64 |
| Barbiturate induction, nitrous oxide and oxygen, ether, curariform agents | 8 |
| Barbiturate induction, ethylene and oxygen, ether, curariform agents | 4 |
| Barbiturate induction, nitrous oxide and oxygen | 2 |
| Barbiturate induction, cyclopropane and oxygen, nitrous oxide and oxygen | 3 |
| Single dose caudal | 11 |
| Catheter caudal | 4 |
| Single dose spinal | 43 |
| Catheter spinal | 2 |
| Intercostal and paravertebral | 2 |
| Orotracheal | 51 |
| Nasotracheal | 2 |

*Hexabarbital 5%, 4; thiopental sodium 1%, 55; and thiamylal sodium 1%, 22.

†Tubocurarine, 1; Laudolissin, 5; succinylcholine chloride, 70; and gallamine triethiodide, 5.

that postoperative myocardial infarction is often painless. They report their experience at the Philadelphia General Hospital with 25 patients who developed myocardial infarction after major upper abdominal procedures. Only 8 of the patients experienced typical pain. In fact, hypotension was more often the only major clue to the diagnosis until an ECG was obtained. In this connection, the considerable advantage in having a preanesthetic ECG for comparison is self-evident. These authors did not speculate about the reasons for the absence of pain in their patients. Perhaps the pain was prevented in some cases by heavy postoperative administration of narcotics (a potent argument against overuse of narcotics). In other cases perhaps discomfort peculiar to the postoperative state overshadowed chest discomfort. And in still others, it is possible that infarction was not truly postoperative, but had its onset *during* the operation, while the patient was anesthetized.

At the risk of oversimplification, it might be said that arrhythmias of themselves do not contraindicate necessary surgery, because they add very little to the risk. What is more important is the determination of their cause and the *state of the myocardium*, which is determined by the ability of the patient to carry on ordinary activity without evidence of cardiac embarrassment. It should be kept in mind that *symptoms* are the most important criteria for the determination of the presence of cardiac failure—then come signs, and least important are the roentgenographic and the electrocardiographic findings. These latter findings are of little value by themselves unless correlated with a good history and thorough physical examination. Most disturbances of cardiac rhythm are not sufficiently serious to warrant preoperative therapy.

Atrial fibrillation imposes no added risk for the patient provided the ventricular rate is below 100 and the condition has been of long standing. If the atrial fibrillation is associated with myocardial failure, the risk involved is merely that of decompensation. Levine[25] and Finkbeiner[26] found that chronic atrial fibrillation does not contribute greatly to operative and postoperative complications, and Pfeiffer[27] reported no increase in surgical mortality in patients with bundle-branch block.

Cole[28] and his associates at the University of Illinois have found that the electrocardiograph is not of much value other than to tell them that cardiac disease of some sort is present. More information is received from the patient's answers to such questions as the following: (1) How far can you walk without resting? (2) How many stairs can you climb without resting? (3) Can you sleep lying down flat? (4) Do you have shortness of breath while at rest? In an editorial published about a year ago, Selzer[29] pointed out that electrocardiography is a purely empirical diagnostic method and that the recorded variation in electrical potential of the heart muscle has no known specific relationship to cardiac disease.

A patient's history of recent coronary occlusion enhances anesthetic and surgical risk. Collected statistics[30-32] show that this condition is accompanied by higher mortality than is any other cardiac lesion, and that the mortality is far greater in patients in whom a diagnosis is not made preoperatively.

The above brings to mind the question of preanesthetic digitalization—so-called prophylactic digitalization. One should not be dogmatic about a controversial subject, but from my personal experience, I feel that routine prophylactic digitalization of the elderly cardiac patient prior to surgery is interdicted. When patients have cardiac disease to such a degree that congestive heart failure, atrial fibrillation, or atrial flutter might occur postoperatively, the evidence in favor of digitalization usually can be determined before operation by evaluation from a cardiac standpoint.

Also, in patients coming to anesthesia for emergency surgery the same principle holds, namely, that routine prophylactic administration of digitalis is not indicated. If digitalization is required, it can be done during or after the operation with but little delay, by the intravenous injection of a rapidly acting drug such as lanatoside C or acetylstrophanthidin.

It should be kept in mind that digitalis and similar drugs are also myocardial toxins. These drugs may be detrimental by enhancing vagal, vagosympathetic, or carotide sinus reflexes, and possibly can precipitate atrial fibrillation, heart block, or premature ventricular contractions.

Postoperatively the basic effort of the surgeon, internist, and anesthesiologist is to prevent the onset or aggravation of cardiac failure. Mention has already been made of the method of utilizing oxygen postoperatively. In the diseased heart with a low reserve, not infrequently the load and stress imposed by anesthesia and surgery will be manifested days after the surgery when the patient develops congestive heart failure. This is particularly true if the postoperative management is inadequate.

The surgeon and anesthesiologist should at all times collaborate to prevent respiratory and circulatory problems by judiciously relieving postsurgical pain. This means the careful use of nerve blocks in the vicinity of the incision, the use of narcotics in low dosage, and the use of intravenous alcohol. Whatever technic or method is utilized, one must afford adequate pain relief to these patients.

The institution of the "stir-up" regimen, deep breathing, encouragement of coughing, osteopathic manipulative treatment, will do much to prevent postoperative atelectasis and other pulmonary complications. Unless congestive heart failure is present, early ambulation is not contraindicated.

Close supervision of the electrolyte and fluid balance, particularly of sodium and potassium levels, is one of the most important prophylactic measures against cardiovascular embarrassment. Overloading of

fluid should be avoided, and in cases of blood loss and hypovolemia, thought should be given to the use of packed erythrocytes rather than whole blood.

Postoperative distention may be prevented by continous gastric suction if necessary, and by the inhalation of 100 per cent oxygen. Singleton, Rogers, and Houston[33] believe that gaseous distention within the gastrointestinal tract is a real problem and should be actively treated. All efforts should be made to limit intestinal distention, since intraluminal gas pressure results in ischemia of the wall and, later, congestion which may affect the viability of the wall. Stretching of the bowel results in a decreased activity of the nerve mechanism of this structure as well as of muscular contraction. This is of greater importance in the aged cardiac patient than in the younger normal individual. Schnedorf and Orr[34] reported that distention plays an important role in failure of the liver and kidneys, impairing liver function first by nerve reflex inhibition, and by causing anoxia that may produce a marked disturbance in the flow of bile and urine.

Rosenfeld and Fine[35] have shown that by causing an animal to breath pure oxygen instead of air, the volume of nitrogen in a closed loop of small bowel distended with this gas can be reduced in about 24 hours to 40 per cent of its original volume. It should be kept in mind that nitrogen comprises 90 per cent of intestinal gas. When 100 per cent oxygen is inhaled, the nitrogen content of the blood is removed and will become zero or close to it. Consequently there will be diffusion of nitrogen through the intestinal wall into the blood stream, and so a reduction of intestinal nitrogen occurs. Partial pressure of nitrogen in the blood is 570 mm. and that in the intestines is 640 mm. Oxygen inhalation in the treatment of intestinal distention is mentioned because in the tendency to use drugs one is apt to overlook physiologic principles proved years ago.

## Summary and conclusions

An attempt has been made in this clinical review to show that proper physiologic anesthetic management, proper selection of the case, and meticulous attention to detail will materially lower mortality and morbidity among aged cardiac patients.

A resumé of the experience at Riverside Hospital in anesthetizing 143 patients with derangements of the cardiovascular apparatus has been presented, including the management of these cases. The 10 deaths that occurred within 3 weeks after the operation were not related to the anesthesia.

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### *References*

1. Mushin, W. W.: Anesthesia for poor risk. Charles C Thomas, Springfield, Ill., 1949.

2. Levine, S. A.: Evaluation of cardiac patient for surgery. Mod. Concepts Cardiovas. Dis. 22:166-167, March 1953.

3. Rutledge, D. I.: Evaluation of cardiac status of poor risk patient. S. Clin. North America 34:597-603, June 1954.

4. Bellet, S.: Preoperative preparation of patient with coronary artery disease. Anesthesiology 17:391-399, May 1956.

5. Dana, B., and Ohler, R. L.: Influence of heart disease on surgical risk. J. Am. M. A. 162:878-880, Oct. 27, 1956.

6. Deraney, M. F., and Connor, C. A. R.: Cardiac patient going to surgery. GP 13:75-82, April 1956.

7. Etsten, B. E., *et al.*: Appraisal of coronary patient as operative risk. New York J. Med. 54:2065-2067, July 15, 1954.

8. Duncan, J.: Symposium on total care of surgical patient; management of surgical patient handicapped by cardiac, diabetic, or renal disease. S. Clin. North America 34:1265-1270, Oct. 1954.

9. Etsten, B., and Proger, S.: Operative risk in patients with coronary heart disease. J. Am. M. A. 159:845-848, Oct. 29, 1955.

10. Boone, D. W., and DeVito, S.: Surgical tolerance of cardiac patient—review of 143 cases. J. Am. Osteop. A. 57:239-244, Dec. 1957.

11. Foldes, F. F., Ceravalo, A. J., and Carpenter, S. L.: Administration of nitrous oxide-oxygen anesthesia in closed systems. Ann. Surg. 136:978-981, Dec. 1952.

12. Young, W. G., Jr., *et al.*: Effects of hypercapnea and hypoxia on response of heart to vagal stimulation. Surg. Gynec. & Obst. 93:51-55, July 1951.

13. Dripps, R. D.: Immediate decrease in blood pressure seen at conclusion of cyclopropane anesthesia; "cyclopropane shock." Anesthesiology 8:15-35, Jan. 1947.

14. Golden, A. A.: Nitrous oxide-oxygen potentiation; a clinical study. J. Am. Osteop. A. 54:102-108, Oct. 1954.

15. Miller, F. A., *et al.*: Evaluation of carbon dioxide accumulation in anesthetized patients utilizing portable mass spectrometer to analyze exhaled gaseous concentrations. S. Forum (1950), pp. 602-610, 1951.

16. Gorlin, R.: Studies on regulation of coronary circulation in man. I. Atropine-induced changes in cardiac rate. Am. J. Med. 25:37-42, July 1958.

17. Pender, J.: Anesthesia for patient with cardiac disease. Wisconsin M. J. 53:315-321, June 1954.

18. Keown, K. K.: Anesthesia for surgery of heart. Charles C Thomas, Springfield, Ill., 1956.

19. Saklad, M.: Inhalation therapy and resuscitation. Charles C Thomas, Springfield, Ill., 1953.

20. Fink, B. R.: Diffusion anoxia. Anesthesiology 16:511-519, July 1955.

21. Dripps, R. D., and Comroe, J. H., Jr.: Effect of inhalation of high and low oxygen concentrations on respiration, pulse rate, ballistocardiogram and arterial oxygen saturation (oximeter) of normal individuals. Am. J. Physiol. 149:277-291, May 1947.

22. Whitehorn, W. V., Edelmann, A., and Hitchcock, F. A.: Cardiovascular responses to breathing of 100 per cent oxygen at normal barometric pressure. Am. J. Physiol. 146:61-65, April 1946.

23. Eckenhoff, J. E.: Physiology of coronary circulation. Anesthesiology 11:168-177, March 1950.

24. Wasserman, F., Bellet, S., and Saichek, R. P.: Postoperative myocardial infarction; report of 25 cases. New England J. Med. 252: 967-974, June 9, 1955.

25. Levine, S. A.: Clinical heart disease. Ed. 3. W. B. Saunders Co., Philadelphia, 1945.

26. Finkbeiner, J. A., Wroblewski, F., and LaDue, J.: Major surgery in patients with chronic auricular fibrillation. New York J. Med. 54:1175-1184, April 15, 1954.

27. Pfeiffer, P. H., and LaDue, J.: Major surgical operations in presence of bundle branch block; a study of operative risk in 59 patients. Am. J. M. Sc. 217:369-378, April 1949.

28. Cole, W. H., *et al.*: Current trends in treatment of cancer. Postgrad Med. 23:231-240, March 1958.

29. Selzer, A.: Clinical electrocardiography at crossroads. Am. J. Med. 24:831-835, June 1958.

30. DePeyster, F. A., Paul, O., and Gilchrist, R. K.: Risk of urgent surgery in presence of myocardial infarction and angina pectoris. A.M.A. Arch. Surg. 65:448-456, Sept. 1952.

31. Etsten, B., and Proger, S.: Operative risk in patients with coronary heart disease. J. Am. M. A. 159:845-848, Oct. 29, 1955.

32. Hannigan, C. A., *et al.*: Major surgery in patients with healed myocardial infarction. Am. J. M. Sc. 222:628-639, Dec. 1951.

33. Singleton, A. O., Rogers, F., and Houston, F. G.: Problem of intestinal gases complicating abdominal surgery. Ann. Surg. 115:921-934, June 1942.

34. Schnedorf, J. G., and Orr, T. G.: Effect of distention of small intestine, anoxemia and oxygen therapy upon flow of bile and urine in dog: relationship to hepatorenal syndrome. Surg. Gynec. & Obst. 74:446-448, Feb. (no. 2A) 1942.

35. Rosenfeld, L., and Fine, J.: Effect of breathing 95 per cent oxygen upon intraluminal pressure occasioned by gaseous distention of obstructed small intestine. Ann. Surg. 108:1012-1021, Dec. 1938.

# Correction

► In the article, "Urologic Considerations for the General Surgeon," by H. Willard Sterrett, Jr., D.O., Philadelphia, Pennsylvania, which was published on pages 700 to 704 of the July issue of THE JOURNAL, two errors occurred. The sentence beginning in line 3 of the third paragraph beginning in the second column of page 701 should have read: When bladder symptoms are present and hysterectomy seems to be indicated, a urogram made at the 15- to 20-minute interval, with the patient standing erect, is of considerable value. The sentence beginning on line two of the last paragraph of the second column on page 702 should have read: Even in a theoretically short procedure such as dilatation and curettage, this can become a very important consideration. We regret the errors.

# THE ELECTROLYTE RING

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THE GROWING MASS of literature on electrolyte balance would appear to the uninitiated to constitute an esoteric science indeed. However, the basic principles are not very complex. In this paper a method of symbolic representation will be presented which perhaps will serve to clarify the various states of imbalance.

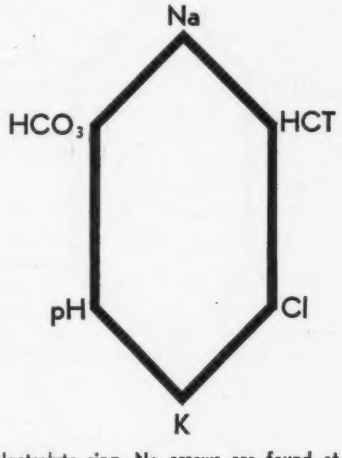



Fig. 1. The electrolyte ring. No arrows are found at the vertices, indicating that each of the values is normal.

## The electrolyte ring

The electrolyte ring (Fig. 1) is merely a device for recording various chemical values, much as one would employ an anatomic stamp to locate pathologic findings. The six-sided figure is drawn, usually freehand, and the reported laboratory findings noted at the appropriate point. If the value is abnormally high, an arrow is drawn from the vertex, pointing outside the ring; if the value is abnormally low, the arrow is drawn from the appropriate vertex, pointing inside the ring (Fig. 2). The length of the arrow may be drawn to correspond roughly to marked, moderate, or small deviations from normal. If the value falls within the normal range, no arrow is drawn.

By utilizing basic principles it is often possible to draw a symbol representative of a given state of imbalance from the history and physical findings alone. It is of course advisable—and in patients ill enough to require hospitalization, mandatory—to obtain the necessary laboratory data to draw up the ring.

The electrolyte ring provides graphic visualization of the various states of imbalance, giving a total picture at once. It acts as a mnemonic device, providing a key for recalling the mechanism. It permits ready comparison between the various abnormal states, showing similarities and differences, a feature particularly valuable in studying acid-base imbalance. If a new ring is drawn after each chemical re-evaluation of the patient, camparison, evaluation of progress, and a picture of the alteration in the patient's electrolyte pattern brought about by treatment can be easily seen. Indications for the direction of further treatment will be readily apparent.

All the chemical values are shown in milliequivalents per liter. Sodium determinations are frequently not indispensable. If a flame photometer is not available, electrocardiographic changes may be substituted for potassium determinations. The bicarbonate value is simply the carbon dioxide combining power expressed in milliequivalents per liter; laboratory personnel will perform the simple conversion if requested to do so.

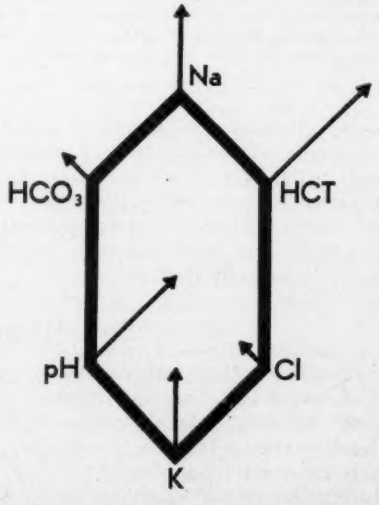



Fig. 2. Deviations from normal. An arrow pointing inside the ring represents a decrease in the value to levels below normal. The size of the arrow is roughly proportional to the magnitude of the excess or deficit. This illustration would symbolize a state in which the hematocrit is markedly, sodium moderately, and bicarbonate slightly increased; while the pH is markedly, potassium moderately, and chlorides are slightly decreased.

The pH refers to pH of arterial blood. If this finding is not available, the pH of the urine will give some idea of the direction of change. This value can often be deduced from the general picture and the clinical evidence. Ideally the vertex marked "hematocrit" would have been a determination of the extracellular fluid volume. The hematocrit is a fair substitute if one is aware of the possibility of error that can result when anemia is present.

It will be noted that no provision has been made for recording certain important data on the ring. There are no vertices corresponding to calcium, magnesium, nonprotein nitrogen, and glucose. Because inclusion of these values would have made the ring unnecessarily complex, it was felt that "ringside notations" would be sufficient. (Fig. 3).

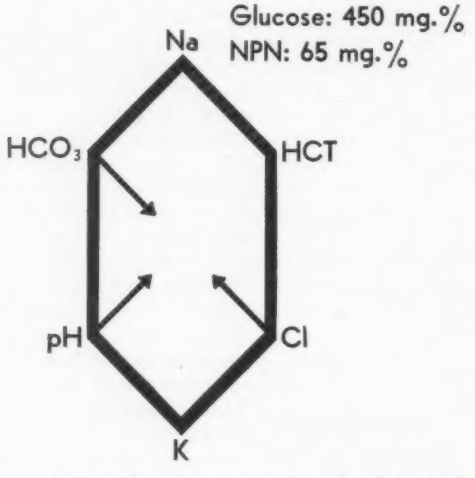



**Fig. 3. Metabolic acidosis due to retention of undetermined ions. This figure also illustrates the use of "ringside notations." The mechanism of the condition is as follows: Retention of undetermined anions (ketones in diabetes, sulfates and phosphates in renal insufficiency) initiates the changes. This results in a reciprocal decrease in bicarbonates and often in chlorides, which alters the ratio in favor of carbonic acid and shifts the pH to the acid side. The clinical picture could appear in the uncontrolled diabetic or the patient with renal insufficiency or shutdown. The "ringside notations" on this illustration refer to a case of diabetic ketosis.**

A word of warning is in order. Laboratory data and their representations may be very misleading unless interpreted in the light of their mechanisms. For example, a patient who is dehydrated may show abnormally high concentrations of sodium, potassium, and so forth, despite the fact that total body sodium and potassium stores are badly depleted.

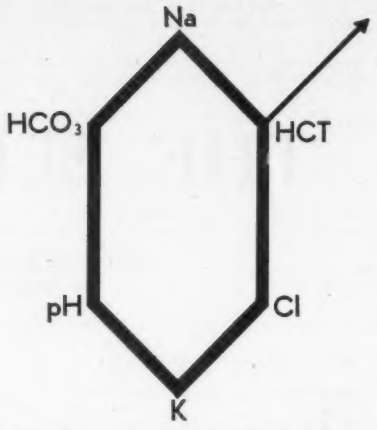
## Dehydration

Dehydration is the most commonly encountered disorder of water and electrolyte balance. Before examining the symbolic representations of the various states of dehydration a few basic facts must be recalled:

1. All gastrointestinal fluids (with the inconsequential exception of saliva) are *isotonic*.
2. Sweat is *hypotonic*. (Sweat is a very dilute solution of sodium chloride with traces of other ions.)
3. Solid foods are *hypertonic* solutions.

There are only three types of dehydration, each requiring a different type of repair solution.

*Isotonic dehydration.*—The patient who is vomiting, has diarrhea or is losing gastrointestinal fluids via a Levin or a Cantor tube is losing isotonic fluid. This situation is equivalent to pouring off some fluid from a beaker of isotonic saline, since the remaining plasma and extracellular fluid are isotonic. Figure 4 shows that the hematocrit is elevated, but the other values are normal since their relative *concentrations* are unaltered. Because the tonicity of the plasma is unchanged, there is relatively little disturbance of osmotic relationships between the cell and extracellular fluid. Repair solutions will of course be isotonic.




**No. 4. Isotonic dehydration. The mechanism in this condition can be outlined as follows: Isotonic fluid is lost; plasma volume is decreased, causing a high hematocrit reading; and all other values remain normal. This condition occurs in patients who are losing isotonic fluid (usually gastrointestinal secretions, as vomitus or in diarrhea). Intracellular fluid is not affected.**

*Hypotonic dehydration.*—If the same patient manages to hold down some water, a subtle change is introduced into the picture. Now the patient is losing proportionately more electrolytes than water. Plasma electrolytes are diluted, and the plasma becomes hypotonic. Inspection of Figure 5 shows that the hematocrit is still elevated, but the concentrations of the electro-

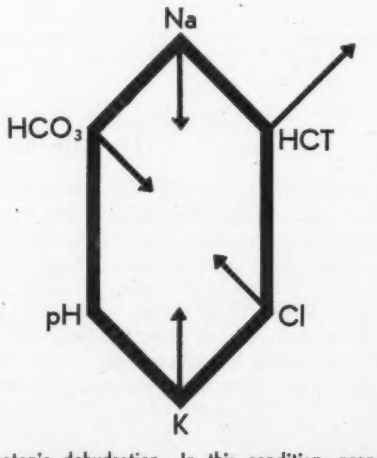



**Fig. 5. Hypotonic dehydration. In this condition, proportionately more electrolytes than water are lost, and the concentrations of the individual electrolytes decrease. The hematocrit reading increases as a result of decreased plasma volume, and intracellular edema occurs because of disturbed osmotic relationship. Patients having vomiting, diarrhea, or loss of gastrointestinal fluids through intubation may develop this condition if they have access to drinking water.**

lytes are below normal. Osmotic forces are called into play: Water is lost from the plasma and enters the cell, producing intracellular edema.

The clinical picture correlates well with the basic disease process. Edema of the brain may produce all the classical signs of increased intracranial pressure. Hypertension, bradycardia, lethargy, convulsions, and coma may occur. In severe cases a choked disk may be found. Dilution of plasma calcium causes irritability, increased reflexes, and muscular twitching. *Hypertonic solutions may be lifesaving.* This picture appears commonly in the patient who has been intubated and allowed to drink water, in the patient whose obstructed bladder has been decompressed, and in the vomiting or diarrheal patient with access to water. A similar picture results when losses of isotonic solution (gastrointestinal secretions) are replaced by glucose in water. The glucose is metabolized, leaving water which dilutes the plasma electrolytes. In this case the hematocrit will be lowered, but the picture will be otherwise unchanged.

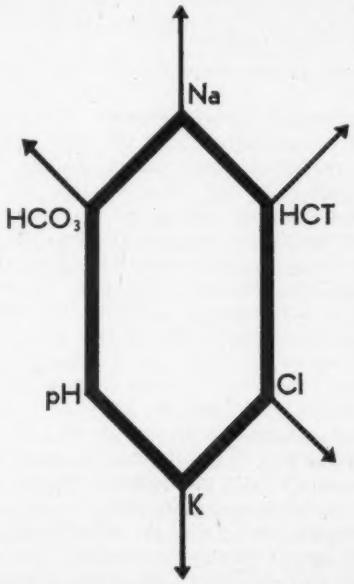



**Fig. 6. Hypertonic dehydration. Proportionately more water than electrolytes is lost in this condition, which increases electrolyte concentration in the plasma and raises the hematocrit reading. Water is withdrawn from the intracellular fluid into the plasma. This condition would occur in the patient who is losing fluids in the form of sweat, who is getting little water, and who may or may not be eating.**

*Hypertonic dehydration.*—The third type of dehydration occurs when proportionately more water is lost than electrolytes. This state may occur when sweat (a hypotonic solution) is lost in large amounts as in febrile states. It may also be found in the patient who is fed solids (hypertonic solutions) and fruit juices (often hypertonic) but not water. Look for this disturbance in the patient who is feeble, febrile, and fed, but unwatered. As may be seen in Figure 6, the hematocrit is elevated and the relative concentrations of the electrolytes have risen. The plasma is hypertonic. The osmotic relationships are now such that water is withdrawn from the cells into the plasma, producing intracellular dehydration.

The clinical picture is one of restlessness, delirium, weakness, and, as in all states of dehydration, oliguria. The mucous membranes are dry and sticky. Fever and tachycardia are present. Repair solutions should of course be hypotonic. Five per cent glucose in water is perhaps best for the initiation of therapy (this is actually isotonic, but the glucose is metabolized, leaving water). If the patient has not been eating or drinking, he has lost electrolytes as well, *even if the individual concentrations of the ions are above normal.* In this case 0.45 per cent saline would be a wiser choice. With re-establishment of the urine flow, potassium may be added to the repair solution. If potassium determinations are not available, serial electrocardiograms may be utilized. Note that dehydration may mask the loss of potassium, and the treatment may precipitate signs of hypopotassemia by diluting the plasma.

For each of the above states of dehydration, there is a corresponding state of overhydration. The symbolic representation of these states is not shown. In order to express these types of imbalance, erase the arrow at the hematocrit position, and draw a new one pointing *into* the ring, showing isotonic, hypotonic, or hypertonic overhydration.

Rarely is a patient so foolish as to overhydrate himself in this manner; it takes a physician to do it for him. The administration of saline where water is required or water where saline is needed are common errors. These can be avoided when the physician understands the type of dehydration with which he is dealing.

## Acid-base balance

The electrolyte ring has a somewhat more complex application in charting acid-base imbalance than the various dehydration syndromes. Preparatory to this description, it should be established what is meant by acidosis and alkalosis. The plasma pH normally ranges between 7.35 and 7.45. If the pH is less than 7.35 the state is considered to be acidotic; if the pH is more than 7.45 it is alkalotic.

The core of the problem is this: *The pH of plasma depends ultimately on the ratio of carbonic acid to bicarbonate in the plasma.* This is generally written $H_2CO_3/HCO_3$, and is normally 1 to 20. No matter how much carbonic acid piles up in the plasma, and no matter how much bicarbonate is present, so long as the ratio is preserved at 1 to 20 the pH will be normal. When the ratio is shifted in favor of carbonic acid, the pH shifts to the acid side and a state of acidosis exists. If the ratio shifts in favor of the bicarbonate, the pH of the plasma shifts to the basic side and a state of alkalosis is present.

Certain other basic facts must be considered:

1. The principle of electric neutrality states that for every positive ion (cation) in solution, there must be a negative ion (anion).

2. The chief positive ion in plasma is sodium, normally present in amounts of 145 mEq. per liter.

3. The principal negative ions in plasma are chloride and bicarbonate. Normally chloride ions amount to about 104 mEq. per liter, and bicarbonate to 27 mEq. per liter. Together they account for approximately 131 mEq. per liter of the anion required to balance the sodium.

4. The remaining anions required to satisfy the principle of electric neutrality amount to approximately 14 mEq. per liter. These are chiefly sulfates, phosphates, and organic acids (such as pyruvic and

diacetic). Since they are generally not individually determined in the clinical laboratory, they are lumped together as the so-called undetermined anions.

From the foregoing it is obvious that if any particular anion accumulates in the plasma, one of the other anions must be excreted to satisfy the principle of electric neutrality. Generally if the bicarbonate level rises, chloride will be excreted. If chlorides accumulate, bicarbonate is excreted. If "undetermined anions" accumulate, both chloride and bicarbonate levels drop. These reciprocal changes, together with the resultant shift in the $H_2CO_3/HCO_3$ ratio, constitute the essential changes that occur in acidosis and alkalosis.

TABLE I—THE ANION-CATION BALANCE SHEET (NORMAL)

| Cation ( + charge) | (Anion ( — charge) | |
|---|---|---|
| Na + 145 mEq./L. | Cl — | 27 mEq./L. |
| | $HCO_3$ — | 104 mEq./L. |
| | Undetermined anions — | 14 mEq./L. |
| | Total | 145 mEq./L. |

*Respiratory acidosis.*—Figure 7 represents a patient whose respiratory exchange is depressed. This may result from a primary pulmonary disorder, such as emphysema, or from drugs such as morphine, or possibly from cerebral dysfunction, as in head injury. Carbon dioxide (in the form of carbonic acid) piles up in the plasma. This shifts the ratio of $H_2CO_3/HCO_3$ in favor of the carbonic acid, and the pH of the plasma is shifted toward the acid side. In order to compensate, the kidneys conserve bicarbonate, which brings the ratio back toward the normal of 1 to 20. Since the bicarbonate level has risen, the chloride level drops in accordance with the principle of electric neutrality. The symbol therefore shows a rise in plasma bicarbonate, a drop in plasma chloride, and a shift in pH toward the acid side.

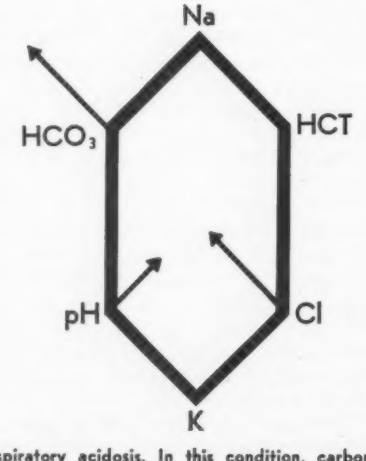



**Fig. 7. Respiratory acidosis. In this condition, carbon dioxide is retained as carbonic acid, altering the $H_2CO_3/HCO_3$ ratio in favor of carbonic acid. The kidneys conserve bicarbonate in an effort to restore the ratio to 1 to 20; this rise in bicarbonate ions results in a reciprocal loss of chloride ions, also through the kidneys. Because compensation is incomplete, the pH is decreased. A patient whose respiratory exchange is depressed would likely have respiratory acidosis. Head injuries, emphysema, asthma, and administration of drugs such as morphine and the barbiturates are common causes.**

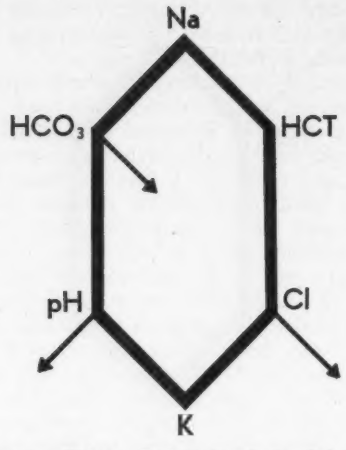



**Fig. 8. Respiratory alkalosis. Carbon dioxide is exhaled in excessive amounts, altering the $H_2CO_3/HCO_3$ ratio in favor of bicarbonate. Bicarbonate ions are excreted by the kidney in an attempt to restore the ratio to 1 to 20; this causes a reciprocal rise in chlorides. However, incomplete compensation results in a shift of the pH to the basic side. This condition occurs in a patient who is hyperventilating —possibly as a symptom of nervousness, encephalitis, or with mechanical assistance to respiration.**

The elevated carbon dioxide combining power (increased bicarbonate) and the low chlorides are merely the results of compensatory changes. Tampering with this picture by the administration of ammonium chloride, for example, will aggravate the acidosis. The excess bicarbonate is required to keep the ratio at 1 to 20. The treatment is to improve ventilation.

*Respiratory alkalosis.*—For some reason (such as encephalitis, nervousness, a polio respirator, or an overenthusiastic hand on the anesthesia bag) the patient represented by Figure 8 is hyperventilating; he exhales large amounts of carbon dioxide. With the drop in the carbonic acid level the ratio of $H_2CO_3/HCO_3$ drops to something less than 1 to 20, for example 1 to 30. The plasma pH shifts to the basic side. In an attempt to compensate, the kidneys excrete enough bicarbonate to bring the ratio closer to 1 to 20. Since the bicarbonate level falls, the chloride level rises to satisfy the law of electric neutrality. The symbol for respiratory alkalosis therefore shows a drop in bicarbonate, a rise in chloride, and a rise in pH.

The treatment is not to tamper with the electrolytes by attempting to restore their values to normal. Administration of carbon dioxide as carbogen, by putting a paper bag over the patient's head, or by removal of the enthusiastic hand is required.

*Metabolic (hypochloremic) alkalosis.*—This condition, illustrated in Figure 9, may come about in several ways. The basic mechanism, again, is alkalosis occurring because the $H_2CO_3/HCO_3$ ratio becomes something less than 1 to 20, perhaps 1 to 30.

A very common cause is vomiting. Chloride ions are lost in the gastric secretions, and the plasma chloride level drops. In order to preserve electric neutrality, the bicarbonate level rises; this alters the acid-base ratio and the plasma pH shifts to the alkaline side. Loss of chlorides through a stomach tube works in the same way.

Another mechanism is a large intake of sodium bicarbonate—soothing to an ulcerated duodenum, but a headache for the physician.

The physician can create his own headache by the injudicious use of mercurial diuretics. These have the

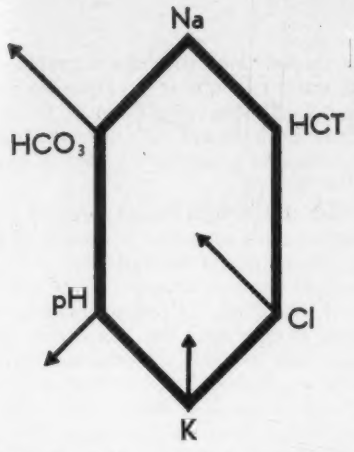



Fig. 9. Metabolic (hypochloremic) alkalosis. Loss of chloride ions may initiate these changes, causing a reciprocal rise in the bicarbonate ions. The $H_2CO_3/HCO_3$ ratio is shifted in favor of the bicarbonate ions, and the pH shifts to the basic side. This same mechanism can result from ingestion of bicarbonates, causing the chlorides to drop reciprocally. Potassium is lost in this condition. The patient who is losing gastric fluid through vomiting or a nasogastric tube, who is receiving mercurial diuretics constantly, or who habitually takes sodium bicarbonate may develop this imbalance.

interesting property of causing the excretion of chloride ions, along with the sodium, leaving a relative excess of bicarbonate ions. The patient in congestive failure who becomes refractory to mercurial diuretics may be suffering from hypochloremic alkalosis. A few grams of ammonium chloride may produce adequate diuresis. If the ammonium ion is contraindicated, potassium chloride will serve the purpose. A simple test for hypochloremia is to titrate a few drops of urine with silver nitrate in the presence of potassium bichromate (Fantus test).[1]

In the symbol for metabolic alkalosis (Fig. 9), note the representation of a low potassium level. Hypopotassemia and metabolic alkalosis go hand in hand; where one exists, one need not look far for the other. Loss of potassium initiates hypochloremic alkalosis, and hypochloremic alkalosis causes loss of potassium. Addition of potassium to the repair solution is indicated, especially if alkalosis proves refractory to the usual methods of treatment.

Since calcium is sparingly soluble in an alkaline medium, tetany may be found in any type of alkalosis. This explains the occurrence of tetany in extreme hyperventilation, as well as in patients who have been vomiting regularly for some time.

The treatment of hypochloremic alkalosis is the administration of saline which furnishes the required chloride ions. The kidneys will preferentially excrete the sodium along with the excess bicarbonate.

*Metabolic (hyperchloremic) acidosis.*—Pancreatic secretion contains large amounts of bicarbonate. Loss of the bicarbonate ion through diarrhea or gastrointestinal intubation may alter the ratio in favor of carbonic acid, shifting the pH to the acid side. As usual, loss of bicarbonate results in chloride retention, to balance the anion-cation content (Fig. 10). Sodium lactate solution provides bicarbonate ions to repair the defect. (The lactate is metabolized to bicarbonate.)

Administration of excess chloride ions in the form of ammonium chloride or even simple saline will result in a reciprocal drop in bicarbonate ions. This shifts the ratio in favor of the carbonic acid, again producing hyperchloremic acidosis. This is the constantly recurring pattern of reciprocal changes between chloride and bicarbonate ions, with the consequent change in the ratio of $H_2CO_3/HCO_3$.

It should be noted that physiologic saline is unphysiologic so far as the chloride concentration is concerned; normal saline contains 154 mEq. per liter, whereas plasma contains only 104 mEq. per liter. If the kidneys are functioning normally, the excess chloride will usually be excreted and bicarbonate conserved; however, if the kidneys are not functioning properly, administration of saline may precipitate hyperchloremic acidosis.

Acidosis in itself may produce very few symptoms until the process is far advanced. The relative excess of carbonic acid stimulates the respiratory center which increases the depth of respiration, discharging the excess carbon dioxide. This process is recognized clinically as the hyperpnea of "acidotic respiration."

*Metabolic acidosis due to rise in the undetermined anions.*—If a ring is drawn up to illustrate diabetic acidosis, a curious change will be seen (Fig. 3): Both the bicarbonate and the chloride levels will be depressed. What has happened to the principle of electric neutrality? It will be recalled that normally the sum of the bicarbonate ions and chloride ions plus 14 mEq. per liter of undetermined anions equals approximately the total sodium ions (145 mEq. per liter). Therefore, if the sum of chloride and bicarbonate is less than 131 mEq. per liter (145 minus 14), one can assume that the level of undetermined anions has risen above 14 mEq. per liter. (A sum of bicarbonate and chloride ions totaling less than 131 mEq. per liter also occurs in the hypotonic state, as shown in Figure 5. The clinical picture will help to differentiate between the two possibilities.) The magnitude of this rise is proportional to the severity of the acidosis. In the case of diabetic acidosis it is the accumulation of the keto-acids that accounts for the change. The clinical picture needs no description here. Administration of insulin will result in the metabolism of the ketones, correcting the basic

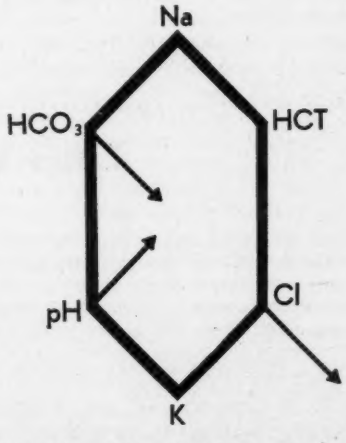



Fig. 10. Metabolic (hyperchloremic) alkalosis. Loss of bicarbonate may initiate these changes, causing a reciprocal rise in the chloride ions; the pH shifts to the acid side because the $H_2CO_3/HCO_3$ ratio is shifted in favor of carbonic acid. This change in ratio can also result from ingestion of chloride ions and a reciprocal drop in the bicarbonate level. Loss of intestinal fluids (rich in bicarbonates) as a result of intestinal intubation or diarrhea, and administration of ammonium chloride and in some cases even saline, can create this situation.

disturbance. Normal saline provides fluid to combat the dehydration, as well as necessary chlorides. These measures may be adequate to restore the balance. In some cases administration of sodium lactate is required.

In renal insufficiency (uremia or renal shutdown from any cause), a similar chemical picture is found. Here the rise in the undetermined anions is due chiefly to sulfate and phosphate retention. Treatment will not be detailed here.

*Potassium imbalance.*—K, of course, is the symbol for potassium; this can serve as a reminder that hyperpotassemia occurs only when the kidney stops functioning. Renal shutdown is the principal cause of an excess of potassium ions. If the patient does not have oliguria, only a physician can raise the potassium to a toxic level. The clinical picture is obscure. There may be electrocardiographic changes showing the change if serum potassium determinations are not available or not indicative. The prevention and treatment of potassium excess is one of the most important principles in the management of the anuric patient. Meat and fruit juices contain large amounts of potassium and should be avoided. A high carbohydrate diet prevents the catabolism of the patient's own protein, which liberates excessive amounts of potassium. When glucose is stored in the liver, a large amount of potassium is removed from the plasma and stored in liver cells, where it cannot exert toxic effects. Cation exchange resins and peritoneal lavage are useful measures. An artificial kidney, if available, can salvage many patients who need only to be tided over the period of renal shutdown.

Hypopotassemia is more commonly seen clinically. There is little conservation of potassium. The patient who is not eating, or is receiving parenteral fluids that do not contain sufficient potassium, can readily develop a deficit. Potassium is lost by vomiting, gastrointestinal intubation, diarrhea, and during administration of ACTH, cortisone or Diuril. Weakness, apathy, and above all the development of hypochloremic alkalosis in such a patient should suggest the likelihood of hypopotassemia. Electrocardiographic changes or serum potassium determinations will confirm the diagnosis. Administration of potassium salts orally or parenterally will relieve the deficit.


## Summary

The electrolyte ring provides a graphic picture of the various states of imbalance. Drawing a ring for a given patient facilitates recognition of the state of imbalance; drawing consecutive rings each time the patient is re-evaluated provides a gauge of progress and direction for therapy.

There are three types of dehydration, each requiring a different repair solution: If water and electrolytes are lost in proportionate amounts, the plasma and extracellular fluid remain isotonic. This state is known as isotonic dehydration. If proportionately more water is lost than electrolytes, the remaining plasma and extracellular fluid becomes concentrated or hypertonic. This condition is known as hypertonic dehydration. If more electrolytes are lost than water, the remaining plasma and extracellular fluid are more dilute, resulting in hypotonic dehydration.

Disturbances of acid-base balance mean changes in the pH of the plasma. The plasma pH is an expression of the ratio of $H_2CO_3/HCO_3$, which is normally 1 to 20. Changes in this ratio cause changes in plasma pH.

Acidosis may result from carbon dioxide retention, chloride retention, loss of bicarbonate ions, or a rise in the undetermined anions. Alkalosis occurs when carbon dioxide or chlorides are lost, and when bicarbonate is retained. All of these mechanisms operate by changing the $H_2CO_3/HCO_3$ ratio. Hypopotassemia is associated with alkalosis, and hyperpotassemia often with acidosis. Comparison of rings drawn to correspond with the various states of imbalance will permit visualization of the reciprocal changes, and greater insight into the interrelationships present.



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### *Reference*


1. Moyer, C. A.: Fluid balance. Year Book Publishers, Chicago, 1952.


### *Additional references*


Bland, J. H.: Clinical use of fluid and electrolyte. W. B. Saunders Co., Philadelphia, 1952.

Everett, M. R.: Medical biochemistry. Ed. 2. Paul B. Hoeber, New York, 1946.


## Litter and the public health

► When environments are untidy, the health department is usually blamed, even though policing the environment may not be its responsibility. Every health department must therefore concern itself with the prevention of litter if for no other reason than to win public support for its whole program. In addition, however, public health workers have a direct stake in litter prevention as a way of reducing disease and accidents. . . .

It is not sufficient to assume that general programs of education, publicity, and propaganda, or appeals to pride and pocketbook, or stricter laws better enforced will prevent litter over the long run. With litter, as with any other health hazard, we cannot plan and focus programs of prevention until we have more information than we now have as to its causative factors.

The public health profession is uniquely equipped to solve some of the basic questions. Meantime it will have to deal with the problem of litter by empirical methods of law enforcement and education, just as it had to deal with yellow fever, cholera, and typhoid fever before the causes and routes of infection of these diseases were known. In this case, however, it is doubtful that an anti-litter serum can be developed or that if it were developed it would be used by the family physician.

Although the challenge is formidable, empirical methods are already producing remarkable results in many localities . . . If communities throughout the country join the effort, perhaps in succeeding generations the "inherited" tendency toward the disease of litter will be markedly reduced. — Homer N. Calver, B.A., *Public Health Reports,* May 1959.

# Use of the LAG SCREW for internal fixation in HIP FRACTURES*

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A SERIES OF 107 consecutive cases of hip fracture treated by Dr. Warren G. Bradford† and myself was reviewed for this paper. Of these, 55 were intertrochanteric fractures and 52 were fractures of the femoral neck.

## Intertrochanteric fractures

Various methods of immobilization for intertrochanteric fractures were used, depending partly on the circumstances of the case and partly on a desire to try various devices. In a majority of cases, a Lorenzo screw with an attached intertrochanteric plate was used. Of the 26 patients treated in this manner and followed up, a good result was reported in 20 and a fair result in 6 (Table I). One patient required a second pinning operation because of poor position of the first pin, but the end result was good. Healing occurred, as is expected in this kind of fracture, in all those in whom the result was considered "fair"; but results were not considered good if the patient had a pronounced limp, pain, or was bedfast for some other reason.

In two cases, Smith-Petersen nails were used for pinning, along with attached intertrochanteric plates; one of these patients died early, and a good result was obtained in the other.

Twelve patients were treated by use of a Roger Anderson well-leg splint, because it was felt that their general condition was not good enough to tolerate hip pinning. Of these, 7 (over half) died within a few weeks. In one case pinning with a Lorenzo screw was performed later. Two of the 12 had a final result of "fair," and only 1 had a good final result.

Nine patients were treated primarily with Neufeld nails. Of these, 6 had a good final result. One had a very poor result, mainly because of arthritic changes in the hip joint.

In 3 cases, the fracture was severely comminuted, with fragmentation extending into the upper portion of the shaft. These patients were treated by external skeletal fixation using a Roger Anderson device. One had a poor result because of arthritic and possibly malignant change; one had a fair result.

Of all patients with intertrochanteric fractures, 2 required additional operations. Of the total number, 12 died before this series was reviewed, leaving 43 to be followed up. Of the latter number, 28 had a good result, 9 a fair result, and 2 a poor result. There were 4 with insufficient follow-up.

*Presented at the annual meeting of the American Osteopathic Academy of Orthopedics, Boston, October 28, 1958.
†Deceased October 31, 1958.

The intertrochanteric fracture does not present the problem of nonunion as does fracture of the femoral neck. The chief problems in this case are the age and general debility of the patient. Any method which will immobilize the fracture site, keep the patient comfortable, and permit motion will result in union if the patient survives general systemic disease.

## Fractures of the femoral neck

It is interesting to note that fracture of the femoral neck has long been considered the "unsolved fracture."[1] Before 1900 it was generally accepted that all cases of fracture of the neck of the femur would proceed to nonunion. Then Whitman devised his hip spica cast for immobilization. Böhler[2] has reported on various early series of cases in which the Whitman plaster cast was used for treatment; union took place in 52 to 75 per cent of those cases, and in 68 per cent of his own cases treated in that matter.

It became apparent to orthopedic surgeons that an adequate form of internal fixation would probably improve the chances of union and permit better handling of the patient, cutting down on both morbidity and mortality; so internal fixation with various screws and nails was begun. It is interesting to note that Dr. George M. Laughlin, of Kirksville, was one of the early users of internal fixation. He used ordinary wire nails for his operation and obtained a number of good results.[3] However, it was not until the development of 18-8 S MO stainless steel and Vitallium that it became practical to develop various types of devices for this purpose. In 1925 the Smith-Petersen nail was devised; this was a triflanged nail which was applied in a process of open reduction. In the early 1930's Smith-Petersen began using the blind pinning method.[4] After this had been developed, devices were further adapted for use in intertrochanteric fractures. Since that time a number of other devices have been used, among the most prominent of which are the Neufeld nail, Knowles pins, the Jewett nail, and the Lorenzo screw. All of these have their merits as well as their disadvantages.

In a review of the literature it becomes apparent that internal fixation methods have cut down the incidence of nonunion. However, it is difficult to compare the various studies because each author uses different criteria to evaluate his end results. With this limitation in mind, Table II has been prepared to show various end results with different methods of treatment.

It is notable that Böhler,[2] pinning early with a Smith-Petersen nail, obtained good final results in 85 per cent of cases. Boyd,[5] using the same device, reports only 43.6 per cent good results, with 19 per cent fair results and 28.1 per cent poor results. He reports that union took place in 86.5 per cent of cases, but a third of these later developed avascular necrosis, producing a

TABLE I—MANAGEMENT OF 55 CASES OF INTERTROCHANTERIC FRACTURE*

| Method of fixation | No. cases | Results | | | Insufficient follow-up | No. deceased | Remarks |
|---|---|---|---|---|---|---|---|
| | | Good | Fair | Poor | | | |
| Lorenzo screw and plate | 29 | 20 | 6 | | 2 | 1 | 1 required repinning |
| Smith-Petersen nail and plate | 2 | 1 | | | | 1 | |
| Roger Anderson well-leg splint | 12 | 1 | 2 | | 2 | 7 | 1 later pinned with Lorenzo appliance |
| Neufeld nail | 9 | 6 | | 1 | | 2 | |
| External skeletal fixation | 3 | | 1 | 1 | | 1 | |
| Summary of results, all methods | 55 | 28 | 9 | 2 | 4 | 12 | 2 required additional operative treatment |

*Age range of patients: 52 to 94 years.

poor final result. Cleveland and Fielding,[6] using the Smith-Petersen nail, reported good results in 67 per cent of patients in two series; 73 per cent of their patients were asymptomatic. They reported union in 83 per cent of femoral neck fractures, but only 77.7 per cent union in displaced fractures. Avascular necrosis developed later in a fourth of their cases.

G. O. Eaton[7] reports good union in 18 out of 20 cases in which he used a combination of pins and plate. Dickson[1] reported good results in 75 per cent of cases in which the Jewett nail was used. Moore,[8] using four of the pins he devised for each fracture, obtained union in 94.18 per cent of cases. J. M. Eaton[9] reported 90 per cent union in cases in which Knowles pins were used.

As can be seen in Table II, although there is considerable variation in the evaluation of end results, most series reported union in 80 to 90 per cent of cases. Several of these series concerned only relatively short follow-up periods; those covering longer periods reported a greater incidence of nonunion and avascular necrosis.

Lorenzo's original paper[10] did not report any percentages of results. We have been informed by personal letter that Dr. Lorenzo had a new paper in preparation at the time of his death several years ago, which would have included that information. Since no other report of this method has been found, it is assumed that this paper represents the first report of end results in patients so treated. We were pleased to note that our percentages compare favorably with those reported with other methods of treatment. This study also includes a comparison with other methods of treatment; however, my method of choice is to use the Lorenzo lag screw of the half-threaded type.

Lorenzo devised his original technic in the early 1930's and first reported on it in 1941.[10] There have been some modifications made in the original technic. The main points of treatment are as follows: Leadbetter's maneuver is not used. The fracture is brought

TABLE II—RESULTS REPORTED BY VARIOUS AUTHORS IN TREATMENT OF FEMORAL NECK FRACTURES

| Author | Appliance used | Mortality | Good | Fair | Poor | Union | Nonunion | Avascular necrosis | Arthrosis |
|---|---|---|---|---|---|---|---|---|---|
| Bado[11] | Godoy Moreira | 2.2% | 53.3% | | 44.4% | | | 22.2% | |
| | Smith-Petersen | | 52% | | 48% | | 8% | 24% | |
| | Primary osteotomy | 7.9% | 88% | | 11.7% | | | | |
| Böhler[2] | Whitman plaster | | 44% | 48% | 8% | 68% | 32% | 17.6% | |
| | Smith-Petersen | | 85% | | | 86.8% | 6.9% | 13.8% | 6.2% |
| Boyd[5] | Smith-Petersen | 9.1% | 43.6% | 19% | 28.1% | 86.5% | 13% | 33.6% | |
| Cleveland and Fielding[6] | Smith-Petersen | | 67% | | | 83% | 17% | 24.4% | |
| Dickson[1] | Jewett | | 75% | | | | | | |
| Eaton, G. O.[7] | Smith-Petersen nail and plate | | 90% | | | 90% | | | |
| Eyre-Brook[12] | Smith-Petersen | | 70% | | | 58.4% | | | |
| AAOS 1939[13] | Smith-Petersen | 8.5% | | | | 89.4% | | | |
| AAOS 1941[14] | Smith-Petersen | | | | | 70% | | | |
| Moore[8] | 3 Moore pins | | | | | 80.7% | 19.3% | | |
| | 4 Moore pins | | | | | 94.18% | 5.82% | | |
| Pugh[15] | Pugh nail-plate | | 86.20% | | 13.79% | 86.25% | 13.79% | 1 case | |
| Spotoft[16] | Smith-Petersen | | 50.3% | 28.4% | 21.3% | 82.2% | 17.8% | no symptoms 32.8% 14.4% partial | 51% |
| Patrick[17] | Smith-Petersen and fibular graft | | | | | 87.2% | 12.8% | 8.5% | 21.3% |
| Eaton, J. M.[9] | Knowles pins | | | | | 90% | | | |
| McElvenny[18] | Smith-Petersen | | 82.8% | | 16.78% | | 3.06% | 1.53% | |
| Jewett[20] | | | 79.9% | 4.7% | 15.4% | | | | |
| Smith-Petersen[4] | | 10% | 75% | | | 75% | 15% | | |
| Siehl | Lorenzo (early) | | 74.2% | 9.7% | 16.1% | 83.9% | 16.1% | | |
| | (late) | | 65.2% | 17.4% | 17.4% | 83.9% | 16.1% | 6.7% | |

TABLE III—MANAGEMENT OF 52 CASES OF FEMORAL NECK FRACTURE*

| Method of fixation | No. cases | Results: Good | Fair | Poor | Insufficient follow-up | No. deceased | Remarks |
|---|---|---|---|---|---|---|---|
| Lorenzo screw All cases | 39 | 23 (74.2%) | 3 (9.7%) | 5 (16.1%) | 5 | 3 | Poor results were all nonunion; repinned with good results |
| *Long-term follow-up (over 18 months)†* | *23* | *15 (65.2%)* | *4 (17.4%)* | *4 (17.4%)* | | | See text for description |
| Knowles pins | 7 | 4 | 1 | 1 | | 1 | |
| Smith-Petersen nail | 2 | 1 | | 1 | | | 1 nonunion repinned with good result |
| Roger Anderson well-leg spline | 2 | 1 | | | | 1 | |
| Neufeld nail Used for initial operation | 2 | 2 | | | | | |
| *Used for pinning after osteotomy†* | *6* | *3* | | *2* | | *1* | |
| Summary of results, all methods | 52 | 31 (33-79%) | 4 | 7 | 5 | 5 | 12 required further operation; 2 poor changed to good results by this means |

*Age range of patients: 39 to 95 years.
†Italicized figures not included in totals, since they represent cases included in other categories.

into reduction with the patient on the fracture table, with his knee in extension and hip in slight flexion. The affected limb is in slight abduction and internal rotation. After the incision is made two guide wires are inserted from the lateral approach (we have not always used the guide wires). Position is checked by roentgenograms taken in two places. The better positioned guide wire is then chosen, and the proper length Lorenzo screw is selected by measuring with another guide wire. The screw is then applied over the one guide wire while the second stabilizes the femoral head and prevents rotation. The half-threaded Lorenzo screw is used; this permits a settling down with some absorption of the neck but does not permit such excessive settling as is seen with several other methods. The lag screw has a definite tendency to draw the distal and proximal fragments together, acting not unlike a gimlet.

With this method we have had results as detailed in Table III. Long-term results were classified as "good" only if the patient had no complaint of limp or pain. If there was some complaint of limp or pain the result was classified as "fair"; if the patient was bedfast all or most of the time, the results were considered "poor." Table III also lists results obtained with several other methods, but there were not enough of those to evaluate results by percentages.

Of the 52 cases of femoral neck fracture, the Lorenzo screw was used in 39. Three of these patients died early, and there was insufficient follow-up in 5 additional cases. Of the 31 cases remaining, there was a good result in 23 (74.2 per cent). Nonunion developed in 5 (16.1 per cent). A late avascular necrosis following union developed in 2; one of the latter has symptoms and the other is relatively symptom-free.

Long-term follow-up was possible in 23 cases. Of these, 15 had a good result, 4 a fair result, and 4 a poor result. Of the long-term poor results, there was one case of nonunion (the patient refused further surgical correction); one case in which a subtrochanteric osteotomy was performed but the result is still poor; one case of avascular necrosis of the femoral head; and one case in which union has taken place, but in which there is considerable arthritic change in the hip joint. Of the long-term fair results, 2 patients have some limp and pain; one has late avascular necrosis; and one has arthritis. Late pin removal was performed in 5 cases.

In this series of cases, including all methods, there were 42 patients available for adequate follow-up, though not necessarily long-term. Of these, there was a good result in 31 cases, a fair result in 4, and a poor result in 7. Two patients in whom there was a poor result with original operation had a good result after a second procedure, giving a final good result in 33 cases (79 per cent).

All cases of nonunion also had inadequate reduction. This coincides with findings in other series. It is notable that the 2 cases of aseptic necrosis developed in patients in whom reduction was adequate and placement of the pin was good. Complete union had taken place, and the patients had been permitted to return to active use of the extremity; then, 18 to 24 months later, the avascular necrosis appeared. One of these patients had rather severe symptoms, but the other had only mild manifestations. These cases serve to emphasize the necessity for keeping any patient who has had femoral neck fracture under long observation, if at all possible.

## Case reports

Typical examples of cases in which there was long-term follow-up have been selected from the series for presentation here.

*Case 1.*—The injury, a typical intertrochanteric fracture, took place on February 2, 1955. Hip pinning with a Lorenzo screw and plate was performed 2 days later, and the patient was discharged from the hospital on March 2. The first recheck roentgenograms were taken on April 7; the second group was taken on May 3, after which guarded weight-bearing was permitted. Healing was considered adequate by July 16, and the patient returned to work on August 1, 1955. The final result was considered good.

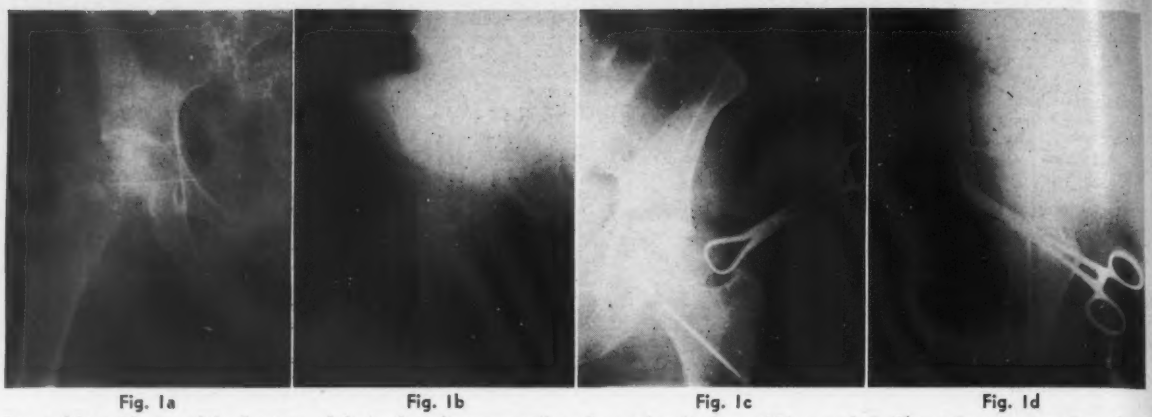


Fig. 1a Fig. 1b Fig. 1c Fig. 1d

Fig. 1 (Case 2). a and b. Fracture of femoral neck; preoperative views taken in June 1950. c and d. Films taken at operation, showing guide wire in place.

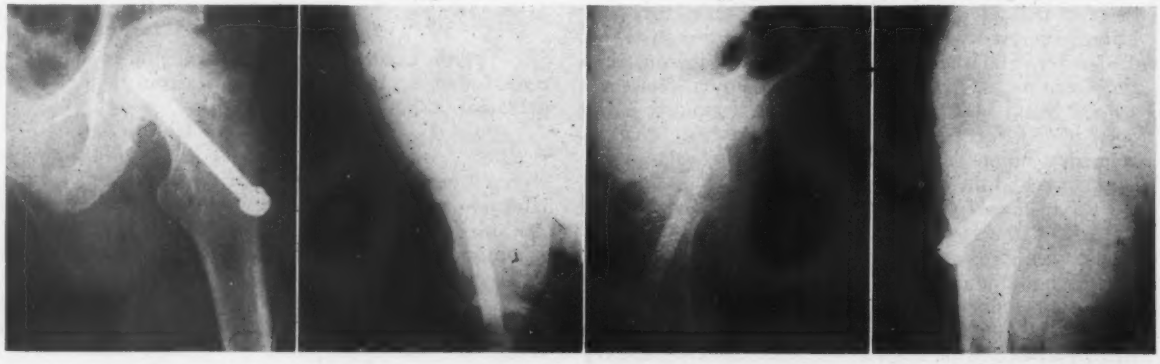
*Case 2.*—A fracture of the femoral neck took place on June 9, 1950, and hip pinning with Lorenzo screw was performed the next day (Figs. 1a through 1f). The patient was discharged from the hospital on June 20. Roentgenograms were taken on August 1 and again on August 31 (Figs. 1g and 1h). At the latter date assisted weight-bearing was begun. Another roentgenogram taken on September 25 showed good union; at that time the patient was walking well and had no pain. The patient was seen in September 1952, at which time she reported that she had had no trouble since she began walking, 12 weeks after the hip was pinned. The final result was considered very good.

*Case 3.*—On February 29, 1952, this patient suffered a fracture of the femoral neck. Hip pinning took place on March 4, using a Lorenzo screw and one Knowles pin, the latter added because the femoral head tended to rotate on the screw in relation to the neck. The pin was also necessary for stabilization in order that the screw could be inserted sufficiently far into the head. Roentgenograms taken on March 17 were interpreted as showing satisfactory progress; however, another roentgenographic study on May 20 revealed some malposition and nonunion. On June 27, roentgenograms showed nonunion, poor position of the pin, and poor reduction. Two days later the pin was removed, a subtrochanteric osteotomy was performed, and immobilization was carried out by means of a Neufeld nail and fibular graft into the old pin hole and across the fracture site. Postoperative roentgenograms showed the graft to have been driven in too far, so that it impinged upon the acetabulum. Recheck roentgenograms were taken on August 8, September 15, and October 27, 1952, and January 12, 1953. The subtrochanteric osteotomy healed satisfactorily in good position, although there was a gradual settling down, so that the Neufeld nail protruded into the acetabulum. Further arthritic change developed in that area, and the nail was removed on January 20, 1953. A report in July 1957 informed us that the patient refused further operation, but was still unable to walk, except for a few steps and with a definite limp. There was still much pain in the hip. It was considered that the poor result in the original pinning was due to poor reduction and the complicating rotation of the head on the neck during application of the pin. The poor result following osteotomy was attributed to arthritic changes in the hip joint; the protrusion of the graft into the acetabulum probably influenced this change.

*Case 4.*—A fracture of the femoral neck, caused by injury on October 4, 1952, was treated by hip pinning with a Lorenzo screw on October 6. Roentgenograms were taken on December 20, 1952, and February 23 and April 17, 1953; all showed nonunion. Reduction was only fair, although the position was maintained. Another roentgenogram taken on June 23 showed some displacement of the head with considerable bone absorption around the screw. Removal of the screw and subtrochanteric osteotomy were advised, but were refused. Additional roentgenograms were

Fig. 1 (Case 2). e and f. Postoperative films, showing Lorenzo screw in place. g and h. Recheck roentgenograms taken in August 1950, showing progress of healing.

Fig. 1e Fig. 1f Fig. 1g Fig. 1h



taken on August 7, 1953, and again on March 25, 1955. At the later date it was again recommended that the pin be removed. This operation was carried out on May 5; nonunion persisted at this time, but the patient refused the recommended reconstructive operation. The operation was also recommended at examinations on July 31 and August 24, 1956, and refused. The patient was seen again in August 1957, at which time he said he would consider having the operation performed since he was not improving. He is able to walk, but has a marked limp and considerable pain. Further displacement between the head and neck has occurred with the passing of time. The result to date is considered poor, because of nonunion and a faulty initial reduction.

*Case 5.*—On October 7, 1952, this patient suffered a fracture of the femoral neck. Hip pinning with a Lorenzo screw took place on October 10. Reduction was faulty, appearing to be inaccurate especially from a lateral view; however, immobilization was satisfactory and union ensued. Roentgenograms taken on January 8 and January 23, 1953, showed satisfactory progress in healing, so that ambulation was begun at the latter date. Roentgenograms taken on April 6 showed a continued good result. At that date postural x-rays were taken, and the patient was given a small heel lift in order to effect balance. Follow-up in August 1957 showed a continued good result; the patient felt no pain and had no limp, and roentgenograms showed good union. The final result was considered good in spite of inaccurate reduction.

*Case 6.*—A fracture of the femoral neck, caused by injury on January 18, 1954, was treated by pinning with a Lorenzo screw on January 20. Several recheck roentgenograms were taken by the referring physician, the last of which we saw early in June 1954. On June 7 the pin was removed and a subtrochanteric osteotomy with immobilization by a Neufeld nail was performed. The patient died on June 14 from a cerebrovascular accident. The result of the initial pinning was considered poor.

*Case 7.*—Hip pinning with a Lorenzo screw was carried out on April 8, 1954, for a fracture of the femoral neck sustained 2 days earlier. The usual recheck roentgenograms taken at 4 and 8 weeks showed satisfactory advance in healing; on July 9 it was noted that healing was nearly complete, and partial weight-bearing was begun. Roentgenograms taken on October 19 showed complete healing of the fracture, and full use was recommended. The patient progressed satisfactorily for several months, but began having increased pain in the hip joint, although this was not reported to us until much later. Recheck roentgenograms taken in August 1957 (Figs. 2a and 2b) showed considerable breakdown of the femoral head as a result of avascular necrosis. At that time the patient was unable to walk more than 25 or 30 feet without sitting down and resting; she "did much better" with a walker. Hip joint reconstruction was recommended. The result to date must be considered poor because of late avascular necrosis, in spite of good reduction and good initial union.

**Fig. 2 (Case 7). a and b. Roentgenograms taken 3½ years after fracture of femoral neck, showing avascular necrosis. Pinning was with a Lorenzo screw.**

Fig. 2a

Fig. 2b

*Case 8.*—An injury sustained on May 16, 1954, caused a fracture of the femoral neck which was treated the next day with hip pinning with a Lorenzo screw. Roentgenograms on July 9 and August 9 showed satisfactory progress in healing, and partial weight-bearing was begun on the latter date. The patient's condition was satisfactory for about a year, and then she developed a noticeable limp although there was no pain and very little discomfort. She was seen again in August 1956; at this time roentgenograms showed considerable mushrooming of the femoral head as a result of avascular necrosis. A note made at that time stated that she limped considerably but had no pain and very little discomfort, except for occasional muscle spasm and fatigue in the area. She felt that she was getting around well. A recheck examination in August 1957 showed substantially the same results as the previous year. The final result must be considered fair. We feel there is no indication for further operation since the patient is relatively symptom-free.

*Case 9.*—An 86-year-old woman suffered a fracture of the femoral neck on July 23, 1954. Hip pinning with a Lorenzo screw was performed on July 26. An examination on August 14 showed some displacement and beginning nonunion; 2 days later a subtrochanteric osteotomy was performed, and immobilization was effected with a Lorenzo screw. The patient was discharged from the hospital on October 29, at which time the site of subtrochanteric osteotomy was almost healed and the patient was beginning assisted weight-bearing with a walker. She later reported that she was getting around well with the walker and was also able to walk some without it. She died in the latter part of 1955. The initial result in this case was poor because of an inaccurate reduction; this was changed to a good result after a subtrochanteric osteotomy.

*Case 10.*—A fracture of the femoral neck was treated by hip pinning with a Lorenzo screw on September 21, 1954, 1 day after the injury. On October 21, a roentgenogram showed gross displacement at the site of fracture with the screw protruding completely out of the head. There was considerable bone absorption around the full length of the screw. It was believed that this showed a reaction to the metal, since there was marked bone absorption in the absence of gross inflammation. The Lorenzo screw was removed on October 22. It was found to be very loose and somewhat discolored, and there was some serous fluid around it. A subtrochanteric osteotomy was performed and immobilization was secured with a Vitallium Bosworth spline. Vitallium was chosen instead of stainless steel because of the apparent adverse reaction to the steel used previously.

The patient was examined roentgenographically on October 22, 1954, and on January 28, March 30, June 8, and November 9, 1955; progress in healing was satisfactory at the site of subtrochanteric osteotomy.

There was continued absorption of the neck of the femur with breakdown of the head, although there was no increased density of the head. At the November 9 examination, it seemed apparent that the spline had split through the head since there appeared to be a portion of the head in the acetabulum and another portion subluxated to a point above the acetabulum along with the superior portion of the spline. On December 12, 1956, the spline was removed since it was felt that the patient might be able to walk if the metal were removed. The patient was obese; this factor complicated the entire management. Considerable inflammation occurred at the wound site following the spline removal; this persisted for about 3 months.

In August 1957, a recheck examination indicated that the patient was able to get around the house with a walker although she had considerable discomfort in doing so. She was comfortable while in bed, although there was an occasional flare-up of phlebitis in the leg. In December 1957 the patient's relatives reported that she was much worse, was having more pain, and had been unable to take any steps with the walker during the past several weeks.

The poor result following osteotomy was attributed to the fact that the spline cut through the femoral head and subluxation occurred at the hip joint, and to the obesity of the patient.

*Case 11.*—Knowles pins were used to pin a fracture of the femoral neck which occurred on June 20, 1955, and was treated a day later. A recheck examination on September 22 showed a fair degree of healing at the subcapital fracture site, and the position of the pins was good. A recheck roentgenogram on October 13 showed increased healing although repair was not yet complete. At that time partial weight bearing was begun. The patient did not come back for an examination for a year; at that time, October 23, 1956, a roentgenogram indicated that two of the Knowles pins had broken. It was thought at first that there was evidence of a healed fracture; however, when this and subsequent films were reviewed it became apparent that this was a case of nonunion. On November 27, 1956, the distal portions of the Knowles pins were removed; all three had broken. Subtrochanteric osteotomy was advised but refused. The patient was discharged from the hospital 2 weeks later, at which time she was walking well without much limp or discomfort. Subsequent x-ray examination indicated what we feel is nonunion even though the patient gets around rather well. The final result is considered fair in spite of the apparent nonunion. Reduction was probably inaccurate, which placed too much strain upon the Knowles pins, or the patient may have walked on the hip too soon.

*Case 12.*—An injury caused fracture of the neck of the femur in this patient, a woman, on July 17, 1955. The hip was pinned with a Smith-Petersen nail on July 18. Recheck roentgenograms on September 19 and October 20 showed lack of healing and beginning nonunion, with some displacement of the femoral head. A roentgenogram on November 22 showed no improvement at the fracture site and more absorption of the femoral neck. The Smith-Petersen nail was removed on November 30 and a subtrochanteric osteotomy was performed, with immobilization with a Neufeld nail. Healing progressed well following this operation. Roentgenograms taken on February 7, 1956, showed well advanced healing of the osteotomy site and considerable improvement in the fracture site. Partial weight bearing with a walker was begun on February 11. Improvement continued and normal walking was begun on April 6. The patient was discharged from the hospital, with both the fracture site and the osteotomy site healed, on June 4; at this time she was symptom-free. A recheck examination in August 1957 indicated that the patient had remained symptom-free and without a limp during the previous year. Roentgenograms showed adequate healing of both sites with no evidence of avascular necrosis. In this case, a poor result following immobilization with a Smith-Petersen nail was changed to a good result after subtrochanteric osteotomy.

*Case 13.*—This patient, a woman who was mentally ill and under the care of a guardian appointed by the court, suffered a fracture of the femoral neck on September 6, 1955. Hip pinning with three Knowles pins was carried out the next day. It was noted that the patient also manifested some arthritic changes in the hip joint. She was discharged from the hospital to a rest home, and roentgenograms were received from the referring physician at 8- and 12-week intervals. On these and subsequent films there was no evidence of union. The patient was readmitted to the hospital on March 10, 1955, and 4 days later the Knowles pins were removed and a subtrochanteric osteotomy was performed. Immobilization was secured by means of a Neufeld nail. After 1 month the patient was again discharged to nursing home care. Roentgenograms taken on April 11 showed the osteotomy site to be healing satisfactorily, and the neck fracture to be healing fairly well. There appeared to be a considerable increase in the severity of arthritic changes in the hip joint. Follow-up examination in August 1957 indicated that the patient had not improved during the previous 18 months; she was unable to walk, had considerable pain in the hip, and had been in poor general condition during the entire period. This must be classified as a poor result.

*Case 14.*—An injury of the hip resulted in fracture of the femoral neck which was treated on December 30, 1955, a day after its occurrence, by hip pinning with a Lorenzo screw (Figs. 3a and 3b). The patient got along well following the operation; however, roentgenograms taken on March 14 and May 9, 1956, failed to show evidence of healing. Examination on July 7 showed a definite nonunion with absorption of the femoral neck and beginning avascular necrosis of the head (Figs. 3c and 3d). On July 30 the Lorenzo screw was removed and a subtrochanteric osteotomy was performed with immobilization with a Neufeld nail (Figs. 3e and 3f). After this operation the patient progressed rather well. Roentgenograms were obtained on September 26 and December 15 (Figs. 3g and 3h), and it was felt by the latter date that healing was complete; so ambulation was begun. There were some cystic areas in the femoral head but the areas of increased density had disappeared. Follow-up examination in August 1957 indicated that the patient had done well during the previous 9 months. Although she had a very slight limp, she was walking without difficulty and had no complaint of pain. She was satisfied with the final result. This case would be classified as having a poor result from the original pinning with the Lorenzo screw, changed to a good result with subtrochanteric osteotomy.

*Case 15.*—A fracture of the femoral neck, caused by an injury on July 16, 1956, was repaired on July 18 with Knowles pins. Recheck examinations on September 11 and October 19 showed very satisfactory healing, and weight bearing was begun on the latter date. In reviewing this case it was noted that reduction was not accurate but that very satisfactory healing occurred

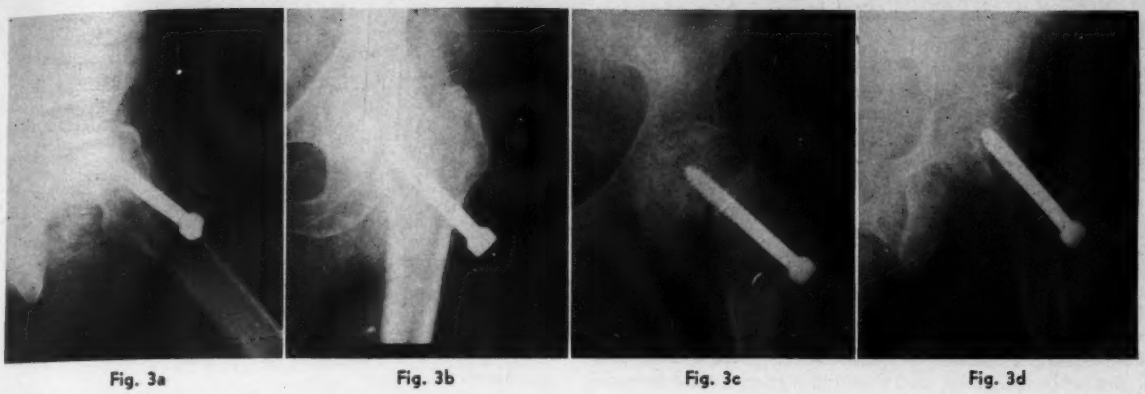


Fig. 3a Fig. 3b Fig. 3c Fig. 3d

Fig. 3 (Case 14). a and b. Fracture of femoral neck pinned with Lorenzo screw; postoperative view. c and d. Recheck x-rays taken 6 months postoperatively, showing nonunion, absorption of femoral neck, and beginning avascular necrosis.

in spite of this, probably because immobilization was adequate. A recheck during August 1957 indicated that the patient had no pain, but that there was some residual limp. She stated that she avoided excessive walking. The final result was considered good.

*Case 16.*—An operation was performed on August 25, 1953, to repair a femoral neck fracture, sustained the previous day, by means of pinning with a Lorenzo screw. Roentgenograms taken on November 16 indicated that healing was progressing satisfactorily, and ambulation with a walker was begun at that time. We had no further follow-up examination of this patient until August 1957, at which time the patient stated that she had occasional pain in the hip. She was able to walk with a cane, but not without some support of this type. She did not complain of a limp or of severe pain, and the roentgenogram showed that the fracture was well healed. The result was considered fair.

## Discussion

What is the advantage of the Lorenzo lag screw over other methods of internal fixation of femoral neck fractures? Aside from personal preference, there is probably no definite advantage except that we feel there is a lower incidence of late avascular necrosis. This may be partially due to the nontraumatic method of application, especially as compared with such devices as the Smith-Petersen, Jewett, and Neufeld nails. We feel that the insertion of these nails adds further trauma to the area of the subcapital fracture and to the articular cartilage over the femoral head. By comparing the percentages reported in the various studies (Table I), it is apparent that no one fixation device has a marked advantage over any other. The skill of the surgeon in obtaining adequate reduction and in properly placing the fixation device is the most important factor in hip pinning. Therefore, it is best that each surgeon choose one device and become proficient in its use. Most authors agree that the vast majority of poor results result from the technical errors of inadequate reduction and faulty insertion of fixation devices.

Several other comments are in order regarding femoral neck fracture. The institution of weight bearing and ambulation too early probably predisposes to late avascular necrosis and to arthrosis. If the fragments are imperfectly immobilized, a small amount of movement at the fracture site gives rise to a continued hyperemic decalcification with absorption of the neck. If the fragments are immobilized properly, as would occur in the case of an impacted fracture or with the ideal fixation device, then the period of hyperemic decalcification is normally short; this is followed by ischemic recalcification with healing. It is not necessary to assume that marked absorption of the femoral neck must occur. We believe that some of the newer fixa-

Fig. 3 (Case 14). e and f. Second postoperative film, showing subtrochanteric osteotomy and Neufeld nail immobilization. g and h. Healed osteotomy site; films taken 4½ months after the second operation. Some cystic areas are visible, but areas of increased density have disappeared.

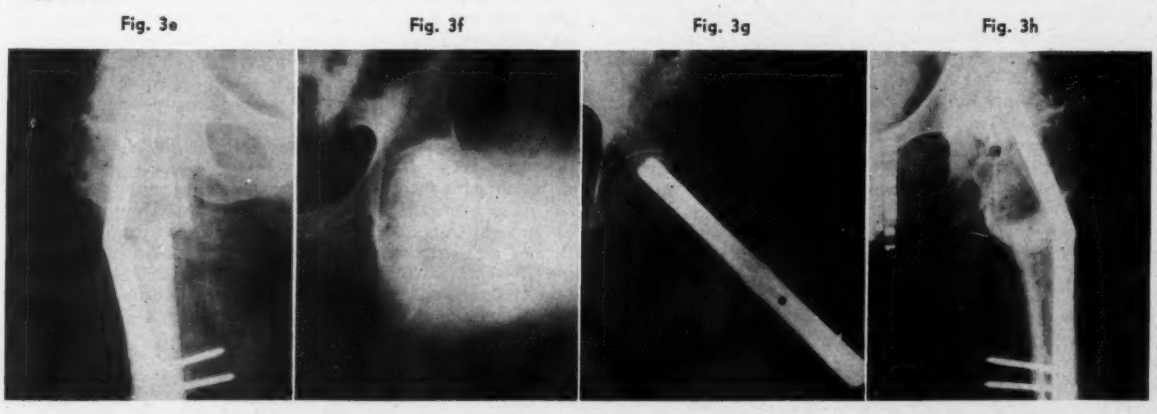


Fig. 3e Fig. 3f Fig. 3g Fig. 3h

tion devices which permit very definite settling with absorption of the femoral neck result in more absorption than is necessary. The head of the femur can be revascularized; it will regenerate by invasion of new blood vessels from the distal fragment if immobilization is maintained, and if the daily microtrauma of weight bearing is avoided. However, when articular cartilage is deprived of blood for any length of time, it undergoes degenerative change with resulting arthrosis. Therefore every effort should be made to secure early union and to avoid stress upon the articular cartilage until further revascularization of the head is accomplished.

A period of 3 months is frequently given as the healing time for this type of fracture. We feel that this is probably too short and that the average time is considerably longer. The only study reporting an exact average is that of Cleveland and Fielding[6] which reports 7½ months as the average time of union in femoral neck fractures. It is also interesting to note that several studies indicate only half of the patients with avascular necrosis of the head show symptoms.

## Summary

A consecutive series of intertrochanteric and femoral neck fractures has been reviewed. Using the Lorenzo screw for fixation of femoral neck fractures, 74.2 per cent of patients showed an early good result, while 65.2 per cent showed a long-term good result. The incidence of nonunion was 16.1 per cent. A comparison has been made with other methods of fixation. The over-all results of this series using several methods of fixation showed 79.1 per cent final good results. Further operative treatment was required in 12 cases.

The surgeon should pick his particular fixation device and become proficient in its use. It is important to obtain adequate reduction of all femoral neck fractures to insure the best results. Sufficient time must be allowed for healing so that the stress of weight bearing will not break down the structure of the femoral neck and head and the articular cartilage over the head.

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## *References*

1. Dickson, J. A.: "Unsolved" fracture; protest against defeatism. J. Bone & Joint Surg. 35-A:805-822, Oct. 1953.

2. Böhler, L.: Treatment of fractures. Grune & Stratton, New York, 1957, vol. 2.

3. Laughlin, G. M.: Case reports of surgical cases. Kirksville Osteopathic Hospitals, Kirksville, Mo., n.d.

4. Smith-Petersen, M. N., Cave, E. F., and VanGorder, G. W.: Intracapsular fractures of neck of femur; treatment by internal fixation. Arch. Surg. 23:715-759, Nov. 1931.

5. Boyd, H. B., and George, I. L.: Complications of fractures of neck of femur. J. Bone & Joint Surg. 29:13-18, Jan. 1947.

6. Cleveland, M., and Fielding, J. W.: Continuing end-result study of intracapsular fracture of neck of femur. J. Bone & Joint Surg. 36-A: 1020-1030, Oct. 1954.

7. Eaton, G. O.: Internal fixation in displaced intracapsular fractures of femoral neck. J. Bone & Joint Surg. 38-A:23-32, Jan. 1956.

8. Moore, A. T.: Hip joint fracture (mechanical problem). Am. Acad. Orthop. Surgeons, Lect. 10:35-49, 1953.

9. Eaton, J. M.: Fractures of neck of femur. J. Am. Osteop. A. 55:456-460, March 1956.

10. Lorenzo, F. A.: Molybdenum steel lag screw in internal fixation of fractured neck of femur. Surg., Gynec. & Obst. 73:99-104, July 1941.

11. Bado, J. L.: Experiences in treatment of intracapsular fractures of neck of femur. J. Bone & Joint Surg. 30-A:294-302, April 1948.

12. Eyre-Brook, A. L., and Pridie, K. H.: Intracapsular fractures of neck of femur; final results of 75 consecutive cases treated by closed method of pinning. Brit. J. Surg. 29:115-138, July 1941.

13. Fracture Committee of American Academy of Orthopaedic Surgeons: Treatment of fractures of neck of femur by internal fixation. J. Bone & Joint Surg. 21:483-486, April 1939.

14. Fracture Committee of American Academy of Orthopaedic Surgeons: Treatment of fractures of neck of femur by internal fixation. J. Bone & Joint Surg. 23:386-390, April 1941.

15. Pugh, W. L.: Self-adjusting nail-plate for fractures about hip joint. J. Bone & Joint Surg. 37-A:1085-1093, Oct. 1955.

16. Spotoft, J.: Osteosynthesis of neck of femur. J. Bone & Joint Surg. 31-A:836-846, Oct. 1949.

17. Patrick, J.: Intracapsular fractures of femur treated with combined Smith-Petersen nail and fibular graft. J. Bone & Joint Surg. 31-A: 67-80, Jan. 1949.

18. McElvenny, R. T.: Management of intracapsular hip fractures. S. Clin. North America 29:31-58, Feb. 1949.

19. Jewett, E. L., *et al.*: Treatment of all fractures of femoral neck and trochanteric region with original one-piece flanged nail. J. Internat. Coll. Surgeons 18:313-328, Sept. 1952.

## *Additional references*

Campbell, W. C., Orr, H. W., and Osgood, R. B.: Report of Commission appointed by American Orthopaedic Association to study end results of intracapsular fractures of neck of femur. J. Bone & Joint Surg. 12:966-969, Oct. 1930.

Knowles, F. L.: Fractures of neck of femur. Wisconsin M. J. 36: 106-109, Feb. 1936.

Speed, J. S., and Knight, R. A., eds.: Campbell's Operative orthopaedics. Ed. 3. C. V. Mosby Co., St. Louis, 1956, vol. 2.

Taylor, G. M., Neufeld, A. J., and Janzen, J.: Internal fixation for intertrochanteric fractures. J. Bone & Joint Surg. 26:707-712, Oct. 1944.

# Sociocultural stresses and the physician-patient relationship

▶ Throughout the greater part of the history of modern medicine the interaction between a physician and his patient has been known to be important. Few physicians today would challenge the observation that success and prestige in the community depend more on "the little things" that impress the patient than on mastery of the technical skills. "Old Doc Brown may not be up to date, but he understands me." "Dr. Jones has a way with people." How often have we all heard similar comments? And that old wheeze "bedside manner" still pops up from time to time. Have we not all at one time or another noted a seeming disparity between competence and popularity with patients? Perhaps we have even heard a somewhat embittered colleague mutter something to this effect, "I'm not trying to win a popularity contest, I just want to practice good medicine."

Having a "way with people" is certainly no substitute for sound medical principles. Nor, on the other hand, are these two in any way antagonistic. It is better to perceive them as complementary forces. . . . There is a growing awareness, especially among the behavioral scientists, that the total content of the physician-patient relationship might well influence the speed or extent of a patient's recovery from almost any form of illness. This hypothesis remains to be tested thoroughly, but research with burned patients, patients undergoing colostomies, and those with cardiac disease, to name a few examples, has brought significant findings to light. I anticipate that further research may well extend even to such areas as convalescence after appendectomy or cholecystectomy.—Rodger L. Buck, M.D., *Journal of the American Medical Association*, August 1, 1959.

# Balanced ANESTHESIA in cesarean SECTION*

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THE PLACE OF general anesthesia in obstetrics, as opposed to regional methods, has long been a subject for debate. It is easy to condemn the use of general anesthesia because of its adverse effects on the newborn infant; this negative opinion is strongly held in many teaching centers, and those whose practical experience includes resuscitating asphyxiated babies usually agree. However, Hingson and Hellman[1] have shown that neonatal mortality is not significantly influenced by the choice of maternal anesthesia.

A drug that has been looked upon with great disfavor for any form of anesthesia is Pentothal sodium; yet many textbooks reveal conflicting viewpoints. The "12-minute rule," which taught that there was a delay of 12 minutes before the fetal level of thiopental sodium approximated the maternal level, was first reported in 1944 by Hellman[2] and has been repeated with modifications since that time. It was claimed that if delivery was delayed more than 12 minutes after administration of thiopental sodium, the fetal blood concentrations would reach a dangerously high level. The time limit has been brought down to 4 to 7 minutes by various other authors.

Recent work by Crawford[3] seems to refute this time lag altogether. His experiments with thiopental sodium in combination with cyclopropane have shown the following: There was no clinical evidence of fetal depression attributable to anesthesia, regardless of the time lapse between induction and delivery. There was no appreciable placental barrier to thiopental sodium, suggesting that the drug reached the fetus at a rate dependent upon maternal circulation. The fetal level reached a maximum almost at the onset of anesthesia, gradually decreasing thereafter at a rate dependent upon fetal and maternal metabolism, excretion, and redistribution.

## Description of study

For this study, all cases were discussed in advance with the surgeon and pediatrician, and it was agreed that every effort would be made to insure a lapse of no more than 5 minutes between induction of anesthesia and delivery of the infant. All patients, except those treated on an emergency basis, were visited the evening before operation to discuss the operation and anesthesia. All except one patient (who was excluded from this series) expressed a desire to be asleep during the operation, and refused regional anesthesia in any form.

*Presented at the annual meeting of the American Osteopathic College of Anesthesiologists, Boston, October 29, 1958.

Premedication, administered ½ hour preoperatively, was either scopolamine hydrobromide, 0.6 mg., or atropine, 0.4 mg. The patient was then brought to surgery and prepared for operation. When the patient and all operating room personnel were ready, a single dose of Pentothal sodium (250 mg. of a 2½ per cent solution) was given within 10 to 15 seconds. As soon as the eyes closed and the jaw dropped, the face mask was applied and flows of cyclopropane, 500 cc., and oxygen, 1,500 cc., were started, and the surgeon was told to make the incision. Low cervical section was performed in all cases.

As the incision was being made, succinylcholine in a solution of 0.1 per cent was started at a rate of 30 drops per minute. The anesthetist assisted respirations after an airway had been inserted. The time was called out every 30 seconds by the circulating nurse. As soon as the incision was made into the uterus, the flow of cyclopropane was stopped. The bag was washed out and refilled with only oxygen, which was administered at a rate of 6 liters per minute until the infant was delivered and the cord was clamped. After delivery, the cyclopropane-oxygen mixture was restarted at a rate of 300 to 1,500 cc., with a small dose of Pentothal sodium if the mother showed signs of movement. The operation was then completed and the mother transferred to the recovery room.

## Results

A total of 33 cases were included in this study. Table I lists the indications for cesarean section; it is noted that the largest number were those who had had a previous section. Two sets of twins were delivered by cesarean section. Although this method is not usually advocated for the delivery of twins, an exception was made because it was felt that each of the infants weighed about 5 pounds, and that hypoxia could be avoided by maintaining a high rate of oxygen flow with assisted respiration.

TABLE I—INDICATIONS FOR CESAREAN SECTION

| | No. of cases |
|---|---|
| Previous cesarean section | 17 |
| Uterine inertia | 4 |
| Cephalopelvic disproportion | 1 |
| Pelvic mass | 1 |
| Pernicious anemia and age | 1 |
| Abruptio placentae | 1 |
| Placenta previa | 1 |
| Prolapse, footling, patient not in labor | 1 |
| Breech, hand and foot | 1 |
| Breech, twins, double impacted | 2 |
| Epilepsy | 1 |
| Cervical stenosis | 1 |
| Face presentation, cephalopelvic disproportion | 1 |

The average length of time from the first dose of Pentothal sodium to the clamping of the cord was about 3 minutes. The shortest time was 1½ minutes and the longest was 6 minutes. Approximately 60 per cent of the infants cried spontaneously at the time the cord was clamped; the longest lapse was 45 seconds. Resuscitative measures (tracheal suction) were required in 4 infants. One infant died 13½ hours after delivery; on postmortem examination a hyaline membrane was found. There were no instances of maternal mortality.

TABLE II—FETAL MORBIDITY

| | No. of cases |
|---|---|
| Hyaline membrane (known) | 1* |
| Hyaline membrane (possible) | 3 |
| Congenital heart disease | 1 |

*This infant died; diagnosis was confirmed by necropsy.

## Discussion

As a result of this study, it seems evident that, although Pentothal levels are near maximum at the onset of anesthesia, the 250 mg. dose was not enough to cause any great fetal depression, especially since oxygen levels were kept high and respiration was assisted. Endotracheal intubation was avoided because it was feared that the period of hypoxia during insertion of the tube could have a deleterious effect on the fetus; also, intubation has its own hazards to be avoided. There is always a danger of inflating the stomach when controlled or assisted respiration is maintained without intubation; however, there was no harm to patients in this series from this complication.

Technics of administration similar in some respects to that described here have previously been reported.[4] Some anesthesiologists prefer to use other agents; some prefer to intubate more often; some reject general anesthesia entirely in obstetrics. Although regional anesthesia is often preferable in cesarean section, because infants delivered with this anesthetic method are so much more vigorous, many obstetricians and most patients prefer general anesthesia. I believe that general anesthesia is perfectly acceptable and does not add appreciably to the risk, even for a premature infant, provided induction and delivery are rapid. Excision of an old scar, explanation of the technic to an assistant, or exchanging of the pleasantries of the day should all be postponed until the delivery is accomplished. One other factor mitigates the objection to general anesthesia. If spinal anesthesia is used, the infant may be depressed by the maternal hypotension and anoxia which sometimes follow.[5]

## Summary

The first concern of the anesthesiologist is to provide safety. The physical condition of the patient and the prenatal history should be considered; then the desires of the obstetrician and his patient should be respected, all other things being equal. Anesthesia and operations performed skilfully and with dispatch will produce viable, vigorous infants regardless of the method or drug used. Personal skill is far more important than any theoretical benefit which might be obtained by using an unfamiliar agent or method.

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### *References*

1. Hellman, L. M., and Hingson, R. A.: Effect of various methods of obstetric pain relief on infant mortality. New York J. Med. 53:2767-2771, Dec. 1, 1953.

2. Hellman, L. M., *et al.*: Sodium pentothal anesthesia in obstetrics. Am. J. Obst. & Gynec. 48:851-860, Dec. 1944.

3. Crawford, J. S.: Some aspects of obstetric anesthesia. Brit. J. Anaesth. 28:146-158, May 1956.

4. Collier, H.: Caesarean section: method of anaesthesia. Brit. J. Anaesth. 28:130-134, March 1956.

5. Bannister, W. K.: Controlled respiration during cesarean section. J. Am. M. A. 162:1028-1030, Nov. 1956.

# CASE REPORT

## A method of repair for vaginal agenesis*

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SINCE DUPUYTREN made the first reported attempt at forming an artificial vagina in 1817 there have been a number of technics described, few of which have been satisfactory. The treatment of congenital absence of the vagina constitutes a most interesting challenge for a surgeon. Since the condition is so rare, the authorities are few and their experience limited.

My purpose in writing on this subject is to report a recent case and to describe a successful method of approach to this unusual problem. No attempt is made to summarize the knowledge of this subject or discuss phases on which material is easily accessible in the literature. A most instructive collective review on the subject was published by Counseller[1] in 1948.

The surgical procedure for the correction of this anomaly varies somewhat with the extent of the deformity and with the technic of the operating surgeon. Many of the procedures described in the literature have been discarded; others have been modified by various surgeons to suit their own particular ideas.[2-6] The method presented here is without claim for originality, since it is a procedure combining various maneuvers previously described by other authors, with the added personal touch of the operating surgeon, particularly in the first stage of the procedure.

The criteria for good construction of a vagina are: First, it must be constructed so that it is satisfactory for marital relations. Second, it must be constructed in such a way that stenosis is not likely to be a constant burden requiring prosthetic dilatation after the initial postoperative course of events. Third, it must be as nearly normal as possible in order to alleviate the anxiety of the patient and the psychologic problem of being deformed. These factors must be kept in mind constantly throughout the constructive procedure. In order to meet the first criterion the surgeon must take advantage of all the closed space between the bladder and rectum. The second criterion requires the use of adequate pieces of graft laid on a stent large enough to occupy the available space, which varies with the individual, and postoperative care must be painstaking and unhurried. The third criterion is dependent on the first two, supplemented by good psychotherapy and instruction of the patient.

*This paper was written while Dr. Bradway was a resident in the Department of General Surgery, Detroit Osteopathic Hospital, under the direction of J. Donald Sheets, D.O., and associates Milton Kosley, D.O., and John Finley, D.O.

Fig. 1 (left). Agenesis of the vagina, preoperative view. Fig. 2 (right). Agenesis of the vagina, showing ureteral catheters in place.

## Case report

The 18-year-old white patient was admitted to Detroit Osteopathic Hospital on January 29, 1958, for the purpose of having surgical construction of a vagina. She gave a history of having sought medical advice 2 years prior to admission because of delayed menarche, for which she was given hormonal therapy with no results. About 1 year later a cyst was removed from her labia, at which time she was told she had no vaginal opening.

Examination on admission showed the patient to be well nourished and well developed, with normal secondary sex characteristics. Pelvic examination under Pentothal sodium analgesia revealed a shallow vaginal vault approximately 1 inch in depth (Fig. 1) and an unusually dilated urethra with hypertrophy of the meatus. The urinary history was negative and normal. Results of preoperative laboratory studies, including an intravenous urogram, were normal.

At operation, the patient was placed in the lithotomy position for cystoscopy and insertion of ureteral catheters (Fig. 2). Following this, an anteroposterior incision from the urethral meatus to the anterior wall of the rectum was made over the blind vaginal vault and deepened by blunt and sharp dissection. At the same time, a second surgical team made a transverse incision in the lower abdomen, partially dividing the rectus muscles and entering the peritoneal cavity. Both ovaries and tubes were of normal size and position, but the uterus was represented only by small rudimentary uterine buds on each side of the apex of the vagina (uterus didelphys) (Fig. 3). An incision was made between these buds and carried down into the retrovesical space to meet the dissection from below (Fig. 4). Resulting minimal bleeding was controlled by coagulation and ligature. Simultaneously, a plastic surgeon obtained a Thiersch graft from the right buttock with a Reese dermatome and placed it on a Boltuch mold (Fig. 5) following which the stent was inserted into the created vaginal vault and held in place by guy strings (Fig. 6). The pelvis was closed around the mold with interrupted 00 chromic suture, and the abdomen was closed in layers after giving ligamentary support to the apex of the vagina. The ureteral catheters were then removed and a Foley catheter was inserted into the bladder. The donor site was dressed with scarlet red rayon gauze and a pressure dressing was applied.

The temperature remained normal through the postoperative period. Antibiotics and tranquilizers were given for the first 3 weeks postoperatively.

On the ninth postoperative day the patient was returned to the operating room and given Pentothal sodium analgesia, and the mold was removed for the first time. The graft was taking well and there appeared to be adequate depth and volume to the newly constructed space. Several small areas of granulation tissue were treated with 10 per cent silver nitrate solution. The vagina was cleansed with green soap, water, and aqueous Zephiran. The mold was cleansed well, immersed in liquid Furacin and replaced in the vagina, being held in place with guy strings. The donor site was redressed. This process was repeated on the eleventh, fourteenth, sixteenth, twenty-third and twenty-eighth postoperative days and revealed satisfactory healing without stenosis. A moderately heavy white discharge with a foul odor was present at each removal of the mold. The chief postoperative problem was that of constipation, requiring frequent laxatives and enemata.

Fig. 3. Pelvic exposure demonstrating congenital absense of uterus. Both ovaries can be seen underneath the broad ligaments.

Fig. 4

Fig. 4. Perineal preparation before insertion of Boltuch mold with skin graft applied.

Fig. 5

Fig. 5. Boltuch mold with skin graft.

Fig. 6

Fig. 6. Insertion of Boltuch mold and skin graft.

Ambulation was begun on the fourteenth postoperative day. The patient was discharged 28 days after surgery, with instructions to use daily vinegar douches and to reinsert the mold four times each day, lubricating it with liquid Furacin. The vaginal vault was approximately 7 inches in depth and admitted two fingers and a medium sized speculum without difficulty.

When the patient returned for examination about 3 months later, the vaginal vault was well healed and the patient was happily married.

## Comment

It is believed that a satisfactory method for the construction of a vagina has been developed by combining the most successful technics of other surgeons with the ideas of the operating surgeon in this case. All-important in the success of this case was the absolute hemostasis before applying the graft, and recognition of the fact that removing the mold too soon is the cause of poor results or failure in many instances.

A satisfactory outcome of the artificial construction of a vagina may be justly anticipated if the indications, complications, causes of failure, and criteria for good results as previously set forth are carefully kept in mind by the operating surgeon.

## Summary

A method of approach to vaginal agenesis has been presented which led to satisfactory functional results in the case reported. The procedure involves a minimum of time and discomfort.

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### *References*

1. Counseller, V. S.: Congenital absence of vagina. J. Am. M. A. 136:861-866, March 27, 1948.

2. Counsellor, V. S., and Sluder, F. S., Jr.: Treatment for congenital absence of vagina. S. Clin. North America 24:938-942, Aug. 1944.

3. Miller, N. F., Willson, J. R., and Collins, J.: Surgical correction of congenital aplasia of vagina; evaluation of operative procedures, end result, and functional activity of transplanted epithelium. Am. J. Obst. & Gynec. 50:735-747, Dec. 1945.

4. Conway, H., and Stark, R. B.: Construction and reconstruction of vagina. Surg. Gynec. & Obst. 97:573-578, Nov. 1953.

5. Wharton, L. R.: Difficulties and accidents encountered in construction of vagina. Am. J. Obst. & Gynec. 51:866-875, June 1946.

6. Whitacre, F. E., and Chen, C. Y.: Surgical treatment of absence of vagina; report of 2 cases. Am. J. Obst. & Gynec. 49:789-796, June 1945.

## Clinical interpretation of laboratory tests

▶ The immense development of laboratory aids in the practice of medicine is in essence the extension and refinement of the senses of the practicing physician. Techniques which have become available are capable of giving us more precise data, but they have become complex and specialized. To unravel a major diagnostic or therapeutic problem we now seek the help of biochemists, biophysicists, bacteriologists, histochemists, experts in isotope techniques, etc. It is the physician's task to ask these experts the relevant questions and to assemble their answers intelligently, so that the history, the fundamental physical examination, the clinical behavior and the laboratory data fit as neatly as possible together. One cannot expect the physician to master the techniques, but one must expect him to have a sufficient knowledge of the meaning of laboratory data and the vagaries of major techniques to be able to apply such data to a particular clinical problem under his care.—Rachmiel Levine, M.D., *The Medical Clinics of North America,* March 1959.

The
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# Editorials

## Relations between the professions of osteopathy and medicine

On July 12, 1959, the House of Delegates of the American Osteopathic Association in regular session resolved:

> That the osteopathic school of medicine in the interest of providing the best possible health care to the public shall maintain its status as a separate and a complete school of medicine, cooperating with all other agencies and groups that sincerely promote the same objective when that cooperation is on an equal basis granting full recognition to the autonomy and contribution of the osteopathic school of medicine.

The resolution, supported by ten whereases, was adopted by a vote of 95 to 22.

The House's action was not surprising, not only because it was consistent with long-established A.O.A. policy, but because it was a natural reaction—humanly natural—to the action of the House of Delegates of the American Medical Association at Atlantic City on June 10, 1959. The significance of that action can be seen baldly if focalized on one of the four recommendations that came out of the A.M.A. House:

> It shall not be considered contrary to the principles of medical ethics for Doctors of Medicine to teach students in *an osteopathic college which is in process of being converted into an approved medical school under the supervision of the Council on Medical Education and Hospitals.* (Italics supplied.)

Discussion of this statement was more concrete—it was said that organized medicine was in the process of transforming an osteopathic college into a medical school under the control of the Council on Medical Education and Hospitals of the American Medical Association. Details of the discussion were made available to the press.

The recommendation, carrying an implication unsupported by factual evidence, could have been divisive in its effect upon the osteopathic profession. Therefore, it was to this recommendation that the A.O.A. House spoke on July 12—by an affirmation straightforwardly consistent with similar statements made by the A.O.A. House on two other occasions, but more emphatically detailed than were they.

Readers who wish to review the history of official meetings between representatives of organized medicine and organized osteopathy are referred to past issues of THE FORUM OF OSTEOPATHY, which contain an objectively detailed editorial account of these discussions.[1] A.O.A. periodicals have contained nothing more recent than the October 1955 FORUM editoral (Settled, Without "Finality") for the simple reason that nothing worthy of reporting occurred until the June 1959 action of the A.M.A. House.

Prior to that of the recent meeting, two similar statements of policy regarding relations between the profession of osteopathy and that of medicine have been made by the A.O.A. House. The first was a full statement of policy published in the September 1952 JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION—one to govern all meetings held between A.O.A. representatives and representatives of other sections of the healing arts. It came out of the July 1952 meeting of the House. The heart of that statement was as follows:

> Firm in the conviction that original and important contributions to health care have been made by osteopathic physicians and surgeons, and equally firm in the belief that the osteopathic profession can best develop those contributions for the welfare of humanity, the American Osteopathic Association reaffirms, in the strongest terms possible, its policy of maintaining a separate, complete and distinctive school of medicine. This reaffirmation is founded in the belief that only as a separate and distinct school of the healing arts can the osteopathic profession fulfill its duty to the public.

In July 1953, the A.O.A. House in session at its Fifty-Seventh Annual Convention in Chicago reavowed its statement.

The initial policy statement (July 1952), its affirmation (July 1953), and the A.O.A. House action of July 12, 1959, were made to serve but one purpose and that alone—to set up the basis upon which any and all discussions to better relations between doctors of medicine and doctors of osteopathy can be held.

1. Editorials: The A.O.A. and A.M.A. conferences. I. Facts. II. An interpretation. Forum Osteop. 27:186-190, Sept. 1953; III. To settle "with finality." Forum Osteop. 28:611-614, Sept. 1954; IV. Settled, without "finality." Forum Osteop. 29:244-247, Oct. 1955.

Negotiations between representatives of organized osteopathy and organized medicine were begun with one object only—bettering relations between the two professions. It seemed to the representatives of both that a first call upon their respective professions was their responsibility for the health and medical care of the people and that their proportionate share of that care did not increase or mitigate the responsibility of either body. At stake during these discussions, and still at stake, are the health needs of the people to whom both professions are pledged to render the best medical care possible.

It was at once recognized during the early discussions that better relations were challenged by a problem that hindered their attainment—ethical restrictions imposed by the Judicial Council of the American Medical Association upon professional association between doctors of medicine and doctors of osteopathy.

For 4 years, wise and judicious representatives of both professions worked together at the national level with growing understanding of their common responsibilities. Hope was expressed that the time was close when osteopathy, a small but socially significant sector of medicine, would be freed of its "cultist" stigma, the better to serve with the dominant profession of medicine. Representatives agreed that the call was to both groups to settle the question of good relations "with finality."

Since 1955, representatives of organized osteopathy and organized medicine have been stymied in their efforts to attain their goal by outmoded assumptions of the A.M.A. House, which upon two occasions has appealed to medical experts for facts about osteopathy. Upon each occasion, it has received the measured opinion of its experts—and after political maneuvering has chosen to disregard their recommendations. Why did the A.M.A. House seek information, only to ignore it and thereby discredit its own authorities? Apparently history holds the answer, since logical analysis does not reveal it.

Readers will recall the June 1955 report of the A.M.A. Committee for the Study and Relations between Osteopathy and Medicine, the course of the report through the A.M.A. House, and the House's acceptance of the minority report of its reference committee. The result of this action was that osteopathic education was held to be the teaching of "cultist" healing by a vote of 101-81 on June 9, 1955, despite the opinion of leaders in American medicine and specialists in medical education.

In response, the A.O.A. House, meeting in Los Angeles, July 1955, quietly reiterated its position of cooperation with any group whenever such cooperation may be expected to lead to improved health service to the American people. Thereupon a 4-year period of negotiation between the two national bodies came to an end through no failure of organized osteopathy to afford such cooperation.

Nearly 4 years later (A.M.A. House in session in Minneapolis, December 1958), tempered leadership in organized medicine was instrumental in reopening the question of how to obtain good relations between the two professions. The A.M.A. House directed its Judicial Council to restudy the "osteopathic question," study its previous actions, review its earlier pronouncements, and submit its opinion on osteopathy as of today (1959).

In June 1959, the Judicial Council reported to the A.M.A. House as directed in its meeting of December 1958. The Council reported favorably on the removal of the "cultist" stigma. This report went to a reference committee, which reported in even more favorable terms. Whereupon the House repeated its pattern of July 1955 and *by the nature of its action* maintained the "cultist" stigma. Thus the A.M.A. House reversed for a second time the studied opinion of its experts.

What followed was both natural and logical—the resolution of the A.O.A. House cited above. The situation has come back full cycle. It can again be described in the language of the editorial in the October 1955 FORUM:

> The problem of good relations between the two professions remains in the hands of individual doctors of medicine and doctors of osteopathy, informed men of good will who appreciate that the improvement of the health care of the people is their first obligation, both as individuals and as members of organized professions.

There is a difference, however. Organized osteopathy this time has made it emphatically clear that it is determined "to continue as an independent . . . profession, cooperative with all and subservient to none," to quote in statement—from what was put as a question by President Northup to the A.O.A. House on the memorable evening of July 12, 1959. The House's answer was clean-cut: "The osteopathic profession and its institutions refuse to place themselves under the protective custody of the American Medical Association."

Analysis of A.O.A. action reveals nothing contradictory in the position of the policy-making body of the American Osteopathic Association. It should lead to no confusion among members of either the A.O.A. or the A.M.A. So decisive an action indicates a profession that feels sure of itself, perhaps more sure than at any time in A.O.A. history. This profession is proud of its past; it faces its future pridefully and hopefully.

If the A.M.A. House sought to trade on a fancied weakness in organized osteopathy, it was relying on wishful thinking.

On the other hand organized osteopathy has slammed no doors shut. It is as willing as it was in February 1951 (date of the first A.O.A.-A.M.A. conference) to continue to strive for better relations between the two professions—if meetings are conducted as between peers.

A.O.A. action has produced no rift between doctors of medicine and doctors of osteopathy at educational levels—or at practice levels where there are reasonable men to be found on both sides. There is no reason to doubt that as before, the members of both professions are determined to give the American people the best possible health care and they believe that good interrelations will forward that end—A.M.A. politics aside.

There is still reason to believe, despite the blind alley down which the A.M.A. House directed its profession only 2 months ago (Atlantic City, June 1959), that farseeing leaders will get back on a main highway where organized medicine will again give full consid-

eration to every factor which enables it to meet better all the health needs of the people it seeks to serve.

Again, as upon other occasions, organized osteopathy has made it clear that it rests its case upon its professional standards, its organizational willingness to cooperate with all authentic individuals and agencies, and the competence of its doctors to meet the health needs of the people.

# Editorial COMMENT

## Promotion, new products, ethics

THE BUSINESS of making and marketing drugs has become "big business." And that is good. It makes possible technics which, if pushed, could insure a productive capacity sufficient to supply the world's essential pharmaceutical needs. Specifically, our competitive system is a tremendous factor in the initiation of new drugs and the improvement of old ones.

To emphasize the fact that drug making and marketing have become a colossal enterprise merely designates the obvious. If a medical editor, however, failed to emphasize that as a business the pharmaceutical industry presents dangers to the profession it would serve, he would be derelict in his duty.

A high index of suspicion is a physician's most valuable asset—suspicion of himself and his methods of practice. On another occasion THE JOURNAL made a plea for doubt, going back to the wisdom of Sir William Osler for a text: "It is much easier to believe than to doubt for doubt connotes thinking." And in the matter of treatment he remarked, ". . . the plain faith of the believer, not the fighting faith of the aggressive doubter, has ever been our besetting sin." Osler's dictum written in another age and operative within a simple practice structure has become even more relevant to the complex structure within which today's physician practices. The doctor's standards of conduct are those of one of the most ancient of professions; pharmaceutical production and promotion are those of industry and business. Although the business world has been moving in the direction of professionalism, it has far to go before it can learn how to control itself.

In this connection the May 1959 JOURNAL related the recently adapted statement of principles of the Pharmaceutical Manufacturers Association to the entire question of the doctor's ethical responsibility and held the statement to be an ethical advance of real importance.

Much more significant than its declaration of principles, however, is P.M.A.'s recent action in assuming the kind of leadership that will link the development and manufacturing of prescription products to the medical profession, this through the employment of a distinguished physician as the Association's president. Dr. Austin Smith, for nearly 10 years editor of *The Journal of the American Medical Association,* is now the full-time, salaried, chief executive officer of the Pharmaceutical Manufacturers Association.

No individual better prepared for a field of management that is basically one of pioneering could have been selected from the medical profession. In 1942 Dr. Smith, originally trained as a pharmacologist, became secretary of the Council of Drugs and Chemistry of the American Medical Association. He continued in that position until his assumption of the A.M.A. editorship in 1949. That he accepted his new post with P.M.A. is in itself strong evidence that he is convinced that closer relationship should prevail between the professions of medicine and of pharmacology—and more, that he is confident that the Association intends to keep faith with the public in an even more ethical promotion of new products. An entire industry has become aware that the business of making and marketing drugs cannot be left entirely to businessmen. This is indeed a radical move in the business world.

The Pharmaceutical Manufacturers Association is a relatively new organization, the result of a recent merging of the American Drug Manufacturers Association and the American Pharmaceutical Manufacturers' Association. It is described as "a national, nonprofit, professional body of pharmacists, pharmaceutical educators, law enforcement officials, research workers, and others interested in the protection of public health and the prevention and treatment of disease."

The development of new drugs has become a stupendous achievement of medical science and their promotion is essential if, paradoxically, they are not to be buried before they are born. While the promotion of drugs has generally been excellently done, it has yet to develop more than a modicum of professional conduct. It must come to move closely within the ethical standards of the profession of medicine rather than within the mores and conduct of the business world. This is not to imply that American business is not much more humane and responsible than it was a generation ago or to overlook the fact that the drug industry itself deserves credit for its genuine attempts to bring its practices to an ethical standard hitherto unknown.

Such a departure from ordinary business management as the selection of a physician to head the Pharmaceutical Manufacturers Association is undeniable evidence of the industry's determination to make its words effective. No move could inspire greater confidence in the public in the work of the pharmaceutical industry than this.

## Quality care and third party medicine

TWO OF THE most important recommendations to come out of the July meetings of the A.O.A. Board of Trustees and House of Delegates had to do with third party medicine. The recommendations, approved by both Board and House, ask that the A.O.A. booklet on health insurance, published in 1951, be brought up to date, and that divisional societies establish health insurance committees. Both measures are intended to keep the profession informed on developments in the field of medical economics, and to supply a basis of operation for the individual physician.

To say that third party medicine is to affect every practicing physician is not to overstate. An imperative function of osteopathic organization is to see to it that its members remain equal to the demands that are inevitably to be put upon them.

Representatives of the newly-formed A.O.A. Committee on Third Party Medicine have attended recent meetings of the National Health Forum of the National Health Council, held in Chicago, of the Health Insurance Association of America in Philadelphia, and of the Group Health Institute in New York City. Out of these meetings one illuminating fact has come clear: the primary concern of third party groups is not, as previously, the *cost* of care, but its *quality*. This fact may well point to the first answer for the osteopathic profession concerning its role in the new medical economics.

Repeatedly, in the presentations of the meeting of the Group Health Institute, the term "quality" entered. Labor representatives repeatedly stressed the point that American labor is willing to pay for the best in medical care for its members. It should be understood, however, that quality care can be provided by the general practitioner, and that the use of specialists cannot guarantee such care. Health groups as a whole are working toward quality goals through such measures as the development of medical statistics, improved teamwork among participating physicians, emphasis upon preventive medicine and early diagnosis, health education, and cementing of the doctor-patient relationship. They are demanding the highest standards in doctors and hospitals.

Third party medicine, it would seem, is dedicated to getting full value for the dollars invested in health care. To survive in this climate, physicians will of necessity give full value. Let osteopathic physicians and institutions look to this.

# SPECIAL ARTICLE

# Use of the STARR FORMULAE to determine effects of training on the cardiac stroke volume and related measurements*

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MEASUREMENT OF CHANGES in fitness as a result of participation in athletic training programs is beset with difficulties. Some years ago Taylor[1] expressed the opinion that respiratory, metabolic, and heart rate recovery and blood lactate measurements are not promising approaches to the solution of this problem, but did suggest that cardiac stroke volume is a "significant differential in fitness for exhausting work."

*Report No. 58-13, Research Center, College of Osteopathic Physicians and Surgeons, Los Angeles, California, and Department of Physical Education, University of California at Los Angeles.

### Historical review

Cardiac stroke volume is the output of blood per ventricle per beat. In normal fasting men at rest this averages 60 to 70 cc. The minute volume is the output of blood per ventricle per minute, that is, the stroke volume multiplied by the pulse rate. In an average sized adult, with a pulse rate of 70, this is approximately 4 to 5 liters. The cardiac index is the minute volume of blood per square meter of body surface area. The mean value of the basal resting cardiac index as obtained by the acetylene method is given as 2.2 liters, ±6.4 per cent.[2] As determined by the direct Fick method, it is about 3 liters, and this figure is supported by studies of blood flow through individual organs.[3] In either case it appears that the cardiac index can be predicted for normal persons from their surface area with only a small discrepancy.[4]

In strenuous exercise, the stroke volume may be as

large as 170 to 220 cc. and the minute output may reach 30 to 40 liters.[5] It has been stated[4] that the hearts of some athletes show no increase in rate during exercise and that the resting stroke volume of such hearts may be double or more that of an untrained individual. In such athletes the cardiac output is increased chiefly through an increase in the stroke volume, with increases in heart rate playing a very minor role.

Lindhard[6] is said to have observed an increase of 20 per cent in the resting stroke volume as a result of physical training. An early study by Henderson, Haggard, and Dolley,[7] employing the ethyl iodine method, revealed that ten nonathletes had a resting stroke volume of 0.109 liters and ten athletes had a resting stroke volume of 0.147 liters. In a later investigation, Stewart and Watson[8] found that the average stroke volumes were appreciably greater for athletes than for nonathletes (65 and 59 cc. respectively). However, they also discovered that the mean cardiac index (2.12 liters and 2.09 liters) and the mean stroke volume per kilogram of body weight of the two groups (0.80 cc. and 0.81 cc.) did not differ significantly, which led them to the conclusion that the larger stroke volume found in athletes was simply a reflection of their larger body size. Stauffer[9] observed 10 members of the Michigan State College basketball team by means of ballistocardiograms. Mean values for resting stroke volume, calculated by Molomut's formula, increased from 2.39 to 2.52 liters following a 3 weeks' conditioning program. After 16 weeks of conditioning it increased to 2.54 liters. A month after the end of conditioning it decreased to 2.47 liters. In studying patients with cardiorespiratory diseases, Bruce and his associates[10] observed that their physical fitness indices were not significantly correlated with their cardiac indices. The implications of this for the study of athletes is not clear.

There is considerable evidence that physical training results in an increased minute-volume.[11] In a comparatively recent study Henry[12] utilized calculations based on mathematical equations derived from theoretical studies of circulatory dynamics to demonstrate a 15 per cent increase in stroke volume in eighteen athletes after a season of competitive sport; however, he regretfully concluded, "It is not very practical to make routine determinations of the stroke volume with presently available methods during the course of athletic conditioning."

Almost immediately after Henry's paper was published, Starr and his associates[13,14] proposed a number of simple formulae for estimating cardiac stroke volume on the basis of blood pressure and age. If these formulae are reliable and sensitive indicators of changes in stroke volume, they will furnish investigators a useful tool for the study of changes in fitness during athletic training programs. However, it is evident that they are usable only if the activity has a chronic effect upon the blood pressures of the participants, and apparently little is known about the effects of various forms of athletic training on blood pressure.[2] Cureton[15] stated that severe training in endurance activities seems to raise the lying systolic blood pressures, and reports that the average lying blood pressure of thirteen swimmers on the United States 1936 Olympic swimming team was 135.5/68 mm. Hg, as compared with an average of 122/76 mm. Hg for a group of university men. The fact that the swimmers had a pulse pressure of 67.5, as compared with a pulse pressure of 46 for the university men, led him to suggest that there is some positive association between pulse pressures and championship swimming ability. Frost[16] noted that training increases stroke volume and further observed that a reasonably high diastolic pressure and a decrease in pulse pressure are considered by many as the sign of a trained individual.

Michael and Gallon[17] studied the circulatory changes taking place in a group of basketball players during the training season. They found a mean blood pressure of 124/78 mm. Hg in October and one of 117/75 mm. Hg the following February. Mean pulse rate was 66 at the start of the season, but dropped to 63 at the end of the season. These authors employed formula no. 68 (stroke volume in cc. = 99 + 0.54 pulse pressure — 0.47 diastolic pressure — 0.61 age in years) of Starr and associates[16] to determine changes in the cardiac output of their subjects as a result of the competitive season. They found no indication of such changes, but suggested that the effects of training on the circulatory system may depend in part upon the type of conditioning program employed. However, their results were consistent with the findings of Freedman and his coworkers[18] based on cardiac catheterization. These investigators were unable to demonstrate that any increase in cardiac output does occur as a result of training.

Some doubt is cast on the feasibility of using the Starr methods to study athletic conditioning by the findings of Browne,[19] who observed that systolic and diastolic pressures were proportionately decreased following exercise; hence, changes in recovery pulse pressures were not statistically significant. Brotmacher[20] argued that changes in pulse pressure show only the *direction* of change in cardiac output. From studies of resting subjects he concluded that accurate measurements of cardiac output are not obtainable by the Starr formulae. Bridwell, Jenss, and Greene[21] commented that diastolic pressure and age bear no obvious relationship to stroke formulae, and that as a result Starr's equations do not yield a useful prediction of stroke volume when applied to hospital patients. In the case of the Michael and Gallon[17] study, the systolic blood pressure decreased to a greater extent than did the diastolic blood pressure, but it appears evident that the resulting change in pulse pressure was not sufficient to have any noticeable effect on the answer obtained from the formula.

## Description of study

It was the purpose of the present study to determine whether training for amateur wrestling produced a change in cardiac stroke volume and related measurements as determined by one of the Starr formulae.

The subjects for this study were members of the varsity wrestling team at the University of California at Los Angeles. Height and weight were obtained from each subject so that the cardiac index could be computed. With the subjects in the seated position, systolic and diastolic blood pressures were obtained by the standard auscultatory method, using the disappearance of the sounds to estimate diastolic pressure, as recommended by Starr.[13] All blood pressures were taken by a single investigator. This information was first obtained in October, before the start of training for the wrestling season, and again in March of the following year, just before completion of the season. Age of the subjects and pulse rate were also noted on both occasions, and cardiac stroke volume was calculated by Starr's formula no. 76 (stroke volume in cc. = 93 + 0.62 pulse pressure — 0.45 diastolic pressure — 0.61 age in years), which Starr and associates[14] appear to

prefer to equation no. 68 utilized by Michael and Gallon. Differences in data obtained in the two occasions were tested for significance by use of Student's "t." Mean data obtained from the eight wrestlers who remained with the team to the end of the competitive season are shown in Table I.

TABLE I—EFFECTS OF TRAINING FOR WRESTLING ON CERTAIN RESTING CIRCULATORY MEASUREMENTS

| | Before training | After training | Level of Sig. P=<.05 |
|---|---|---|---|
| Mean pulse rate | 67.8 | 64.0 | Not sig. |
| Mean systolic blood pressure | 123.0 mm. Hg | 119.0 mm. Hg | " |
| Mean diastolic blood pressure | 83.0 mm. Hg | 80.5 mm. Hg | " |
| Mean pulse pressure | 40.3 | 38.5 | " |
| Mean calculated stroke volume* | 67.78 cc. | 67.1 cc. | " |
| Mean calculated minute volume† | 4595.48 cc. | 4294.40 cc. | |
| Mean $M^2$BSA | 1.95 | 1.94 | |
| Mean cardiac index‡ | 2356.66 cc. | 2213.61 cc. | |

*By Starr formula no. 76
†Calculated stroke volume × pulse rate
‡Minute volume ÷ $M^2$BSA

The mean calculated stroke volumes were well within normal limits, and none of the changes in blood pressure, and hence in the calculated stroke volume, were statistically significant. Alternative explanations appear evident: Either training for amateur wrestling (and basketball) does not affect the cardiac stroke volume, or the changes in stroke volume resulting from participation in amateur wrestling (and basketball) cannot be determined by use of Starr formulae. No definite answer to the question is available at this time, but the data tend to support previous findings that the Starr equations are not useful.

## Summary

Study of members of a university wrestling team revealed that no statistically significant changes in pulse rate, systolic blood pressure, diastolic blood pressure, or pulse pressure resulted from a season of training for this sport. No significant changes in cardiac stroke volume, as calculated by formula no. 76 of Starr and associates, were observed. The data suggest that the Starr equations are not useful for studies of this kind.

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## References

1. Taylor, C.: Some properties of maximal and submaximal exercise with reference to physiological variation and measurement of exercise to'erance. Am. J. Physiol. 142:200-212, Sept. 1944.
2. Grollman, A.: Physio'ogical variations in cardiac output of man; value of cardiac output of normal individual in basal, resting condition. Am. J. Physiol. 90:210-217, Sept. 1929.
3. Bard, P., ed.: Medical physiology. Ed. 10. C. V. Mosby Co., St. Louis, 1956.
4. Best, C. H., and Taylor, N. B.: Physiological basis of medical practice; text in applied physiology. Ed. 6. Williams & Wilkins Co., Ba'timore, 1955.
5. Wright, S., Maizels, M., and Jepson, J. B.: Applied physiology. Ed. 9. Oxford University Press, New York, 1952.
6. Lindhard, J.: Cited by Best, C. H., and Taylor, N. B.: *Op. cit.*, ref. 4.
7. Henderson, Y., Haggard, H. W., and Dolley, F. S.: Efficiency of heart, and significance of rapid and slow pulse rates. Am. J. Physiol. 82:512-524, Nov. 1927.
8. Stewart, H. J., and Watson, R. F.: Circulation in athletes. J. Clin. Investigation 19:35-41, Jan. 1940.
9. Stauffer, G. C.: Investigation of effects of conditioning on ballistocardiogram of varsity basketball players. Unpublished Master's Thesis, Michigan State College of Agricultural and Applied Science, 1955.
10. Bruce, R. A., *et al.*: Relationships of availability of oxygen to physical fitness in patients with cardio-respiratory diseases. Proc. Soc. Exper. Biol. & Med. 73:212-216, Feb. 1950.
11. Steinhaus, A. H.: Chronic effects of exercise. Physiol. Rev. 13: 103-147, Jan. 1933.
12. Henry, F. M.: Influence of athletic training on resting cardiovascular system. Res. Quart. 25:28-41, March 1954.
13. Starr, I.: Clinical tests of simple method of estimating cardiac stroke volume from blood pressure and age. Circulation 9:664-681, May 1954.
14. Starr, I., *et al.*: Studies made by stimulating systole at necropsy; on re'ation between pulse pressure and cardiac stroke volume, leading to clinical method of estimating cardiac output from blood pressure and age. Circulation 9:648-663, May 1954.
15. Cureton, T. K., Jr., *et al.*: Physical fitness, appraisal and guidance. C. V. Mosby Co., St. Louis, 1947.
16. Frost, R. B.: Cardiovascular fitness. Unpublished paper presented before the A.A.H.P.E.R. Fitness Council, March 30, 1959.
17. Michael, E. D., Jr., and Gallon, A.: Changes in brachial pulse wave and estimated heart stroke volume measurements, during physical conditioning. Unpublished paper presented at the Scientific Session, American College of Sports Medicine, March 30, 1958.
18. Freedman, M. E., *et al.*: Effects of training on response of cardiac output to muscular exercise in athletes. J. Appl. Physiol. 8:37-47, July 1955.
19. Browne, J. A.: Relationship of conditioning and step test performance to arterial blood pressure. Unpublished Master's Thesis, University of Southern California, June 1950.
20. Brotmacher, L.: Evaluation of derivation of cardiac output from b'ood pressure measurements. Circulation Res. 5:589-593, Nov. 1957.
21. Bridwell, T., Jenss, R. M., and Greene, D. G.: Evaluation of Starr's equations for prediction of stroke volume. Circulation 14:250-253, Aug. 1956.

# Inapparent infection

► The microbes causing the greater portion of our morbidity in hospital patients today are the familiar microbial species that through the years we have grown accustomed to regard without fear. . . . Approximately one-half of any group of adults are carriers of potentially pathogenic staphylococci. It is estimated that 40 percent of the population of the United States over the age of 30 are harboring living tubercle bacilli so that in effect both tubercle bacilli and staphylococci can be considered to be part of man's normal microbial flora.

All of these microbes have the capacity to survive for long periods in man without causing either benefit or harm insofar as can be detected by today's methods. But when man's internal environment is suitably altered, as is so often the case today, all of these microbes have the capacity to arise and produce serious illness.—Walsh McDermott, M.D., *Public Health Reports*, June 1959.

*Intern Matching Plan* 789
*Department of Public Relations* 792
*Department of Public Affairs* 795

**A.O.A. ACTIVITIES**

# Intern Matching Plan

► The osteopathic Hospital Intern Matching Plan, in process of development since 1955, is now an accomplished fact. Finishing touches were put upon the Plan procedures when the Matching Plan Committee met in Central Office, Chicago, July 13, with George C. Wolf, D.O., Lancaster, Pennsylvania, presiding.

Other committee members in attendance were George A. Fuller, Jr., Kansas City, Missouri, and Dr. Ralph F. Lindberg, Detroit. Present as consultants were Joseph M. Peach, president of the Kansas City College of Osteopathy and Surgery. Emil Herbert, Davenport, Iowa, executive secretary of the American Osteopathic Hospital Association, and Vincent P. Carroll, D.O., Laguna Beach, California, chairman of the A.O.A. Committee on Hospitals. Patricia A. Guinand acted as meeting secretary. Dr. Wolf and Mr. Fuller represent the A.O.H.A., and Dr. Lindberg and John P. Schwartz, D.O., Des Moines, who was not present, represent the American Osteopathic Association.

Co-sponsored by the two associations, the Osteopathic Hospital Intern Matching Plan is designed as a continuing procedure to facilitate the assignment of osteopathic graduates to internships in osteopathic teaching hospitals. It is expected to reduce the confusion, time, and expense now involved in the placement of interns, yet maintain the freedom of choice of both graduates and hospitals.

Originally proposed in the A.O.A. Bureau of Hospitals 4 years ago, the Plan was referred in 1957 to the A.O.H.A. for development, was returned to the A.O.A. Bureau for study, and in 1958 was given approval by both the A.O.A. Bureau of Hospitals and the Board of Trustees. The Matching Plan Committee was named in April of this year. Final acceptance, dependent upon the favorable vote of hospitals representing 50 per cent of available osteopathic internships, came in June.

The basic idea of the Plan is to match interns and hospitals through a yearly pooling of preferences.

Plan headquarters will be in the Central Office of the A.O.A., Chicago, and the matching will be carried out once a year by members of the committee. All information will be held in strictest confidence. Miss Guinand, secretary of the A.O.A. Committee on Hospitals, will also act as Plan secretary.

Involved this year are more than 500 internships and 94 hospitals.

The official statement of the Matching Plan procedure follows:

**Introduction** • Independent and uncoordinated appointments to internships by different institutions create considerable confusion and result in the incomplete utilization of the internship potential. Therefore, a new mechanism operating through a central agency has been established so that hospitals and interns shall be mutually matched as far as this is mathematically possible, with all matchings performed and results released at the same time. To accomplish this purpose, and project to the future a perpetual mechanism to meet varying conditions and problems as they arise, this plan has been created.

**Operation of Plan** • The Osteopathic Hospital Intern Matching Plan is established as a central agency with headquarters and personnel at 212 East Ohio Street, Chicago 11, Illinois. To finance the Plan, each participating hospital shall remit $2.00 for each intern requested, with a minimum charge of $10.00, and each participating intern shall pay a registration fee of $1.00.

The Plan shall be operated with the following objectives in mind:

1. Hospitals and applicants shall be matched in such a manner that, should the process be individually performed, the same selections would be made.

2. Participating hospitals and students shall be free to pursue

independent study and investigation of each other.

3. Participating hospitals shall choose interns only through the Matching Plan. There shall be no independent acceptances.

**Mechanism** • This mechanism shall be followed by students, hospitals, and the Plan's central agency:

1. *Applicant (student) procedure:* After investigating every hospital in which he is interested, the student shall procure application forms from the hospitals to which he desires to apply for internship, and shall return the forms, when completed, to these hospitals. In addition, he shall procure from the office of the dean of his college copies of the Plan's official listing sheet. On these he shall list in order of preference the hospitals to which he has made application for internship, and shall forward two copies to the Matching Plan headquarters in Chicago. This listing information shall be held in strictest confidence by the Plan personnel.

2. *Hospital procedure:* After processing the applicants for internship, the hospital shall forward to the Plan, in duplicate, the official rating sheets previously provided. These shall list the number of internships available and all applications received, in the order of the hospitals' preference.

3. *Hospital rating of applicants:* Each hospital shall rate each applicant in order of preference; e.g., (1) John Doe; (2) Robert Rowe; (3) Jane Smith, etc.

Each applicant must receive a number except as follows: If hospitals have received applications from students whom they do not desire as interns, even though their quota may not be filled under the Osteopathic Hospital Intern Matching Plan, the rating of *x* must be given for such applications. (Even though the applications are large in number, every applicant must be listed and rated.) As in the case of student applications, all ratings shall be held in strictest confidence by the personnel of the Plan.

4. *Plan procedure:* On receipt of the student's preferential list of hospitals, the Plan shall confirm receipt by returning the student's duplicate copy. The same procedure shall be followed on receipt of hospital listings. These return confirmations are a check against error or omission.

5. *Mechanics of assignment:* When all hospital and student applications are in the hands of the Plan under the established deadlines, the matching shall be done by members of the Matching Plan Committee at the headquarters in Chicago. The mechanics shall be that the hospitals' rating of students shall be followed strictly until their quota is filled, and that the students' rating of hospitals shall be strictly followed as long as internships are available.

**Examples** • Students who have rated a hospital as first choice are matched to hospitals that have rated the same student as *1*. This automatically assures the first choices of both hospital and student. Other runs produce results of a similar mathematical efficiency. Applicants who are not placed shall be so notified by the deans of their colleges. The Plan shall lend every assistance in placing these students by providing their deans with lists of the remaining available internships.

Dr. George C. Wolf, center, presided at a meeting of the Intern Matching Plan Committee held July 13 in Chicago to put finishing touches on new A.O.A.-A.O.H.A. procedures now to be followed by osteopathic students and hospitals in the assignment of interns. With him are Dr. Ralph F. Lindberg, left, and Mr. George A. Fuller, Jr. Dr. John P. Schwartz, fourth committee member, was unable to be present.

Students, hospitals, and Matching Plan personnel must take into consideration the fact that certain state examining boards recognize only *certain* osteopathic hospitals. Therefore, it will be necessary for everyone concerned to cooperate so that students who need internships which will be recognized in certain states are placed in hospitals which meet the requirements of those states.

**Instructions for completing the student's preferential listing** • The student's preferential listing is to be completed in duplicate and forwarded to the Osteopathic Hospital Intern Matching Plan between December 1 and January 15 of his senior year. The student is to list only those hospitals to which he has made application for internship. He is to place his first choice following Number 1, the second following Number 2, etc., continuing in the direct order of preference.

The student should complete all information on the forms, sign both copies, and mail them to the Osteopathic Hospital Intern Matching Plan, 212 East Ohio Street, Chicago 11, Illinois. He shall enclose a check or money order made payable to the American Osteopathic Association for $1.00, his application fee. While ten spaces are provided, there is no limit to the number of hospitals to which a student may apply. A minimum of three is recommended. He should apply only to those hospitals which are acceptable to the examining board of the state in which he intends to practice.

**Summary** • The following paragraphs are offered in summary of Matching Plan procedures:

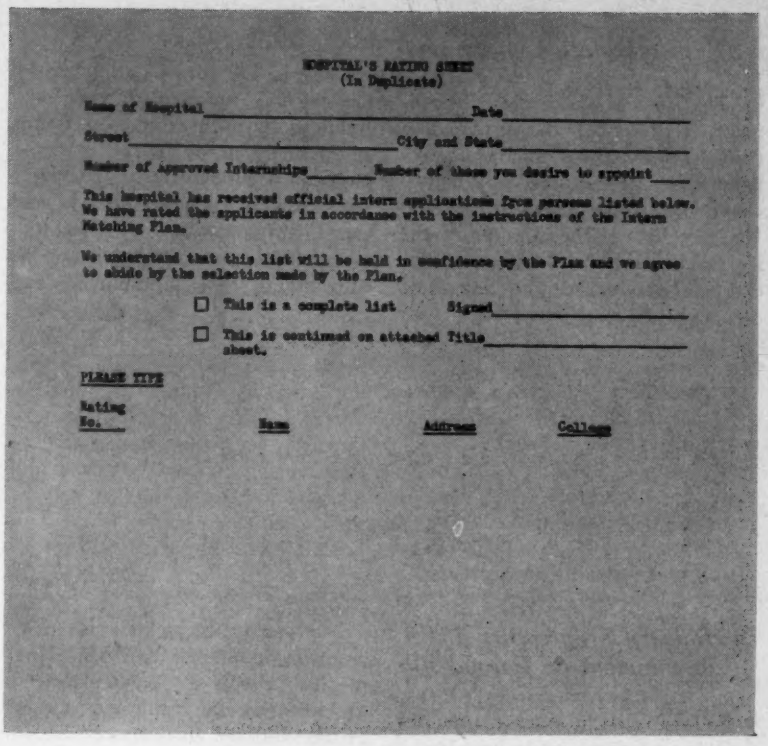
1. Hospitals will invite and receive applications from students in the regular manner. The students will submit applications in the usual manner, according to the present Bureau of Hospitals regulations. Interviews with the students may be conducted as desired. Each hospital will establish such deadlines for the receipt of intern applications as it desires.

2. Between December 1 and January 15, this procedure will be followed: Each student will send to the Plan the list of hospitals to which he has applied, in the order of his preference. He shall remit a fee of $1.00, payable to the American Osteopathic Association, 212 East Ohio Street, Chicago 11, Illinois.

3. Between December 1 and January 15, hospitals will submit to the Matching Plan headquarters their choice of interns who have applied, rating them 1, 2, 3, 4, 5, etc. and will accompany this list with a fee of $2.00 for every intern requested, with a $10.00 minimum fee, payable to the American Osteopathic Association. The actual matching will be done at Plan headquarters between February 1 and February 10.

4. The results of the matching will be sent to college deans for distribution to students on February 15. The list of intern appointees also will be sent to the hospitals on February 15.

5. The hospital shall send contracts to the appointees by February 28.



HOSPITAL'S RATING SHEET
(In Duplicate)

Name of Hospital_____ Date_____

Street_____ City and State_____

Number of Approved Internships_____ Number of these you desire to appoint_____

This hospital has received official intern applications from persons listed below. We have rated the applicants in accordance with the instructions of the Intern Matching Plan.

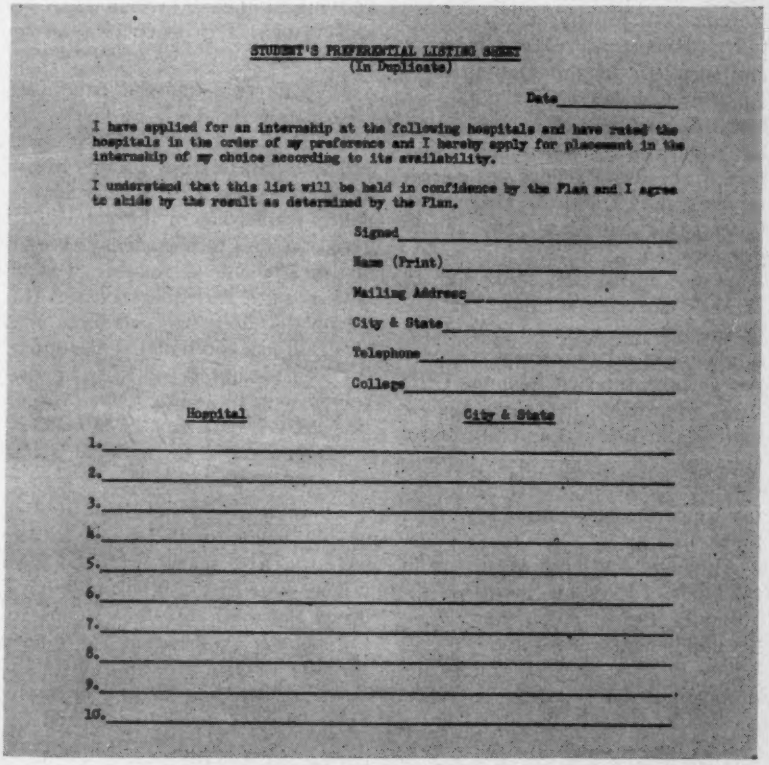
We understand that this list will be held in confidence by the Plan and we agree to abide by the selection made by the Plan.

☐ This is a complete list Signed_____

☐ This is continued on attached Title_____
sheet.

PLEASE TYPE

| Rating No. | Name | Address | College |
|---|---|---|---|



STUDENT'S PREFERENTIAL LISTING SHEET
(In Duplicate)

Date_____

I have applied for an internship at the following hospitals and have rated the hospitals in the order of my preference and I hereby apply for placement in the internship of my choice according to its availability.

I understand that this list will be held in confidence by the Plan and I agree to abide by the result as determined by the Plan.

Signed_____

Name (Print)_____

Mailing Address_____

City & State_____

Telephone_____

College_____

| | Hospital | City & State |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 8. | | |
| 9. | | |
| 10. | | |

Reproduced here are rating sheets that will be used by osteopathic hospitals and seniors in osteopathic colleges in the Osteopathic Hospital Intern Matching Plan. Procedures worked out by the American Osteopathic Hospital Association and the American Osteopathic Association, and agreed to by hospitals representing 50 per cent of available internships, will this year be used by more than 500 college seniors and 94 osteopathic teaching hospitals.

### *Dr. John M. Andrews attends rehabilitation conference*

► Dr. John M. Andrews, Los Angeles, represented the osteopathic profession at a conference on the rehabilitation of the physically handicapped held recently in Los Angeles. Dr. Andrews is the director of the Los Angeles Rehabilitation Center, erected last year on the campus of the College of Osteopathic Physicians and Surgeons.

Close to 150 persons attended the meeting. A number of addresses, followed by open discussion, pointed to many needs in the work of physical rehabilitation. Particularly stressed were the needs for a central coordination service for the employment of the physically handicapped; education of doctors, employers, and the public in their attitudes toward the handicapped; improved methods in the preparation of the handicapped for employment; and the recognition of the importance of working through family physicians.

The Los Angeles conference was called as a follow-up of the Governor's Conference on Rehabilitation of the Physically Handicapped held in 1957 in Sacramento.

DEPARTMENT OF PUBLIC RELATIONS

### *Dr. Ballinger represents A.O.A. in comment on Forand Bill*

► Following is an extract from the A.O.A. statement made by Charles L. Ballinger, D.O., before the Committee on Ways and Means of the House of Representatives on the Forand Bill, July 17, 1959:

DR. BALLINGER: Mr. Chairman and members of the Committee, I am Dr. Charles L. Ballinger, of Coral Gables, Florida, representing the American Osteopathic Association. I am also a fellow and Secretary of the American College of Osteopathic Surgeons, an affiliate organization. . . .

At the outset, we would like to express our appreciation for the privilege of comment on H.R. 4700, a bill to amend the Social Security Act and the Internal Revenue Code so as to provide insurance against the costs of hospital, nursing home, and surgical service for persons eligible for old-age and survivors insurance benefits, and for other purposes.

Although developments in medical sciences have not increased the absolute life span of man, these developments are resulting in attainment of a steadily increasing proportion of the population to the seventh and eighth decades.

It is not so much our purpose to cause man to live forever as it is to try to help him live his full life span in health, comfort, and happiness.

The osteopathic schools of medicine, in common with the other medical schools, are participating in the research and training programs of the National Institutes of Health in such fields as cancer, cardiovascular diseases, arthritis and metabolic diseases, neurological diseases and mental health, which may be said to bear a primary relation to aging.

Several years ago the American Osteopathic Academy of Geriatrics was set up to make special studies, and to organize study groups to interest the members of the osteopathic profession in the subject of geriatrics and to keep them abreast of developments. A number of state laws require refresher courses for osteopathic licensees, and these sessions afford additional opportunity for considerations of current developments. In addition, the profession actively participates in conferences on aging at the national, state, and local levels.

There are 409 hospitals staffed by physicians and surgeons of the osteopathic school of medicine. Ninety-four of these hospitals have been approved by the American Osteopathic Association for intern training. Fifty are approved for residency training in one or more of the twelve fields recognized by approved specialty examining boards: American Osteopathic Board of Anesthesiology, American Osteopathic Board of Dermatology, American Osteopathic Board of Internal Medicine, American Osteopathic Board of Neurology and Psychiatry, American Osteopathic Board of Obstetrics and Gynecology, American Osteopathic Board of Ophthalmology, American Osteopathic Board of Pathology, American Osteopathic Board of Pediatrics, American Osteopathic Board of Physicical Medicine and Rehabilitation, American Osteopathic Board of Proctology, American Osteopathic Board of Radiology, American Osteopathic Board of Surgery.

Two hundred and forty-eight surgeons are currently certified by the American Osteopathic Board of Surgery in one of several surgical specialties: neurosurgery, obstetrical-gynecological surgery, orthopedic surgery, peripheral vascular surgery, plastic surgery, surgery, urological surgery.

Five hundred and ninety-one surgeons are members or candidates of the American College of Osteopathic Surgeons.

An applicant for certification by the American Osteopathic Board of Surgery or for membership in the American College of Osteopathic Surgeons must be a graduate of an approved college of osteopathy and surgery, which requires a minimum of 3 years' preprofessional college work for entrance, and 4 years of professional work for graduation; must have at least 1 year internship, and a minimum of 3 years of formal training subsequent to internship; must have assisted in not less than 400 major surgical operations—I call your attention to the fact that that is the minimum and most men in their training period do assist in many times that minimum number; and must have per-

formed a minimum of 200 major surgical operations upon his own responsibility subsequent to the completion of the minimum required period of formal training.

These surgeons and these hospitals are utilized by the Bureau of Employees' Compensation for care of Federal civil employees for injuries and illnesses incurred in the course of their employment, and they are used in the Medicare program of the Defense Department for the care of dependents of members of the Armed Services.

The osteopathic witness who appeared last year before this committee on a bill similar to the pending Forand Bill, pointed out that the bill at that time left uncertain the right of OASDI beneficiaries to utilize the services of the surgeons of the osteopathic profession under the proposed program.

We regret that the present bill continues the oversight. The bill specifies free choice of surgeons, M.D.'s, who are certified by the American Board of Surgery, or who are members of the American College of Surgeons, or who are members of the attending surgical staff of a hospital accredited by the Joint Commission on Accreditation of Hospitals. The Joint Commission deals only with hospitals staffed by M.D.'s. Even though under the bill the Secretary of Health, Education, and Welfare could by regulation extend freedom of choice of other classes of surgeons, we feel it is prejudicial to expressly qualify those of one school of practice and leave indefinite the inclusion of others.

Last year, at about this point in the osteopathic testimony, a member of this committee, Congressman Noah Mason of Illinois, made the following comment:

"I want to simply summarize what you have been trying to tell us. You say that if an osteopathic surgeon is licensed to practice surgery in a state, that should qualify him for this particular work under this OASI, and not depend entirely upon the American Board of Surgery or the members of the American College of Surgeons or their osteopathic counterparts; is that right?"

That summed up our contention then as it does now.

Thank you.

THE CHAIRMAN: Thank you, Doctor, for bringing to us the views of the American Osteopathic Association.

Are there any questions?

MR. FORAND: Mr. Chairman.

THE CHAIRMAN: Mr. Forand.

MR. FORAND: I don't have a question, but I do want to make this statement: that it was not intended that any qualified surgeon, be he osteopathic or anything else, not be permitted to take part in this program. In drawing up the bill, we tried as nearly as possible to cover the field, but we apparently did not take in all of them. And I assure you there is no intent of discrimination whatsoever and when and if, but particularly when, we take up the bill in executive session, I shall do my best to see that all of them are included.

DR. BALLINGER: Thank you, Mr. Forand.

THE CHAIRMAN: Mr. Mason.

MR. MASON: Really, Doctor, you have not expressed any opinion, pro or con, for this bill or against the bill. You are simply asking if and when a bill is passed that your organization be considered on a par with the others and have part in it? That is what I gather from your testimony.

DR. BALLINGER: That is correct. Mr. Mason.

MR. MASON: I think that is a fair request.

THE CHAIRMAN: Are there any further questions? If not, we thank you again, Doctor.

### *PHS publishes disability report on U.S. workers*

▶ As a result of illness and injury, workers with family incomes under $2,000 per year lost an average of 10.3 days from work during the 12 months ending June 30, 1958, as compared with a loss of 5.9 days for those in families earning $7,000 and over, according to findings of the U.S. National Health Survey of the Public Health Service.

An inverse relationship existed also between income and other forms of restricted activity, such as days in bed due to illness and injury.

Workers 65 years of age and over lost about 11 days from work compared with 8.4 days for those in the 45-64 year group and 6.3 days for those aged 17-44.

City children lost 9 days from school, on the average, as a result of illness and injury; rural nonfarm children lost 7.8 days; and farm children lost 7.3 days. However, farm children 15 and 16 years of age lost about 10 days from school as compared to 6.5 days lost by urban children of these ages.

This information appears in the latest of a series of published statistical reports issued by the U.S. National Health Survey. The data applies to the total civilian population of the country, exclusive of persons confined to long-term institutions.

Respiratory illnesses as a group were the leading cause of activity restriction. They were responsible for 40 per cent of all activity restriction and half of all days in bed. The totals for this group of diseases were affected by the Asian influenza epidemic, but even in a normal year the respiratory diseases are likely to head the list.

Circulatory diseases, including heart disease, ranked second in terms of total volume of disability, followed by injuries and their chronic effects, with digestive diseases running a close fourth.

The new publication contains additional statistics on the relationships between disability and various characteristics of the population, and gives details by calendar quarter. The figures supersede preliminary data published earlier which were based upon only one quarter.

The data is derived from the continuing household interviewing with a representative sample of the population, conducted for the Public Health Service by the U.S. Bureau of the Census. The information recorded about individuals is confidential and only statistical totals are published.

The report from which these statistics were taken is "Disability Days, United States, July 1957-June 1958," Public Health Service Publication No. 584-B 10. Copies are for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 40 cents a copy.

### *Dr. Goddard appointed FAA civil air surgeon*

▶ Dr. James L. Goddard is the first to hold the title of Civil Air Surgeon of the Federal Aviation Agency. (See JOURNAL, March, 1959, p. 440.) His appointment, announced by E. R. Quesada, FAA Administrator, took effect July 12.

The post had been filled on an acting basis by Dr. John E. Smith. Dr. Smith is now Chief of the Research Requirements in the Office of the Civil Air Surgeon.

Dr. Goddard, 36, has been a career public health officer since 1951. Just prior to his FAA appointment, he had been serving as Chief of the Accident Prevention Program, Bureau of State Services, Public Health Service since July 1956. He was responsible for developing and administering a nationwide program to cut down deaths, disabilities, and injuries from accidents of all types. Dr. Goddard holds a commissioned rank of medical director in the U.S. Public Health Service.

He attended public school in Warren, Ohio, and later Washington and Lee, Mount Vernon, and Temple universities. He received his medical degree in 1949 from the School of Medicine, George Washington University, and spent a year's internship with the U.S. Public Health Service Marine Hospital, Cleveland, Ohio. In 1955, he received a Master of Public Health degree from the Harvard School of Public Health, graduating *magna cum laude*.

The Civil Air Surgeon is concerned with the mental and physical fitness of airmen and air traffic controllers. He develops and recommends FAA's medical standards for airmen, controllers and others, and conducts aviation medical research into the physiological and psychological limitations of the human body that may affect man in flight. He is also concerned with encouraging the development of equipment, methods, and training that will enable FAA's examining physicians to predict reactions of pilots and other persons who may be subjected to emergency conditions that cause abnormal physical and mental stress.

In his position of Chief of the Research Requirements Division, Dr. Smith will have primary responsibility for the application of findings of aeromedical research to civilian aviation and will have responsibility for promoting and providing for research in the field of aeromedicine and clinical medicine as it applies to aviation.

### *Veterans Administration cuts paper work*

▶ Paper work for the Veterans Administration home-town medical care program is being reduced substantially by a new system of mechanized records writing which became effective July 1.

Under the nationwide home-town program, veterans with service-connected disabilities receive medical care at VA expense from some 38,000 private physicians of their choice, in areas where care at VA outpatient clinics is not available.

The new records writing system will save considerable time for both the agency's personnel and private physicians in the program.

Forms to be completed monthly by the doctors have been reduced to two—a report of treatment rendered and the doctor's bill to the VA for his services. Both are designed to make his writing job brief.

The name and address of the private physician, the name and address of the VA office handling the forms, and the name and VA claim number of the veteran receiving treatment will be printed on the forms by VA addressograph plates. Use of window envelopes will make the addressing of envelopes unnecessary.

The doctor also will receive from the VA an annual authorization for treatment for each of his patients in the program, valid for approved treatment during the year as needed.

VA advises doctors participating in the program to mail their treatment reports and billing statements together to the agency, at the end of each month.

These forms will be machine processed by a punch card system at VA regional offices following medical approval.

### *Impairment among noninstitutional civilians in United States*

▶ Following is an excerpt from "Health Statistics," Public Health Service Publication No. 584-B9:

During the year, July 1957 through June 1958, there were, on the average, about 24 million impairments among the civilian noninstitutional residents of the United States. These conditions were reported by respondents in the Health Household-Interview Survey of the U.S. National Health Survey. Impairments are chronic or permanent residual effects of disease or injury involving principally the musculoskeletal system and the special senses.

Between 12 and 13 million impairments consisted of some form of limited motion, including paralysis and other abnormalities in function, structure, or number of the bones, joints, or muscles of the limbs, back, and trunk. About 6 million involved some degree of hearing loss. Visual defects of varying degrees numbered almost 3 million. Blindness, defined in the Health Household-Interview Survey as inability to read ordinary newsprint even with the help of glasses, totaled about 960,000 cases. There were approximately a million cases of speech defects. A miscellaneous group of 1,359,000 impairments included such conditions as: abnormalities of structure of the face, jaws, and skull; mental retardation; deviation from normal body weight and size; and absence of organs and sites other than eyes or extremities.

The rate per 1,000 persons for all types and causes of impairments was 141.4 for both sexes: 160.8 for males, and 123.1 for females. The rates for certain conditions, such as blindness and impairments of the spine, hip, and pelvis, were higher for females than for males, but for impairments due to injury the rates were higher for males in every category.

For all impairments, the proportion caused by injury was 33.0 per cent; 41.8 per cent for males, and 22.2 per cent for females. The types of impairments having the highest proportions due to injury were absence of and nonparalytic types of defects of the extremities. The

types least often due to injury were speech defects and blindness.

Impairments as a whole increased with advancing age, from 52.9 per 1,000 persons at ages under 25, to 615.0 per 1,000 at ages 75 and over.

Impairments were reported for persons of school and preschool age at a rate of 44.3 per 1,000; workers, 160.6 per 1,000; housewives, 174.4 per 1,000; and retired persons, 560.0 per 1,000. Among persons not classified in any of the foregoing groups the rate was 348.6 per 1,000.

About one tenth of the total number of impairments involved one or more bed-disability days in the year preceding the interview. Paralysis of all types and impairments affecting the back and limbs involved more bed-disability days than any of the other types of impairments.

Of all impairments reported, 82.3 per cent had been seen by a physician at some time. Paralysis and absence of extremities had been medically attended in practically all cases. Hearing and speech defects were most frequently reported as unattended, with only 68.1 and 59.3 per cent, respectively, having been seen by a physician.



Bureau of Public Education on Health

## *Missouri governor signs new Composite Board bill*

▶ The new Missouri Composite Board Practice Act regulating the practice of doctors of osteopathy and doctors of medicine becomes effective August 29.

Originally introduced as Senate Bill No. 50, this new law was signed by Governor James T. Blair on June 18. It repeals both the present Missouri Osteopathic Practice Act, originally enacted in 1897 and thereafter amended, and the present Missouri Medical Practice Act.

After August 29, the new law will regulate the practice of doctors of osteopathy and doctors of medicine in the state. It provides for the issuance, by the new State Board of Registration for the Healing Arts, of a license to practice as a physician and surgeon for doctors thereafter licensed. It also provides, in Section 22(1), for the licensing of doctors who are now licensed under either of the two practice acts presently in effect.

The text of the new law follows:

MISSOURI
Regular Session
Senate Bill No. 50

AN ACT to repeal Sections 334.010 to 334.220, inclusive, RSMo, being all of Chapter 334, relating to practitioners of medicine, surgery and midwifery, and to repeal Sections 337.010 to 337.090, inclusive, RSMo, being all of Chapter 337, relating to practitioners of osteopathy, and to enact in lieu thereof twenty-two new sections relating to the practice of the healing arts in the State of Missouri, creating a state board of registration for the healing arts, providing for the licensing of all physicians and surgeons and the annual registration of physicians and surgeons and midwives, and granting to said board of registration for the healing arts authority for supervision and regulation of the professions licensed and registered by it, with penalties for the violation of the Act.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section A. Sections 334.010 to 334.220, inclusive RSMo, being all of Chapter 334, relating to practitioners of medicine, surgery, and midwifery, and Sections 337.010 to 337.090, inclusive, RSMo, being all of Chapter 337, relating to practitioners of osteopathy, are hereby repealed, and there is hereby enacted in lieu thereof twenty-two new sections relating to the practice of the healing arts in the State of Missouri, said new sections to read as follows:

Section 1. Whenever used in this act, unless expressly stated otherwise, the term "Board" means the State Board of Registration for the Healing Arts in the State of Missouri.

Section 2. 1. There is hereby created and established a board to be known as "The State Board of Registration for the Healing Arts" for the purpose of registering, licensing and supervising all physicians and surgeons, and midwives in this state. The board shall consist of seven members to be appointed by the Governor by and with the advice and consent of the Senate, five of whom shall be graduates of professional schools approved and accredited as reputable by the American Medical Association and two of whom shall be graduates of professional schools approved and accredited as reputable by the American Osteopathic Association, and all of whom shall be duly licensed and registered as physicians and surgeons under the laws of this state. Each member must have been a resident of this state for a period of at least five consecutive years next preceding his appointment and shall have been actively engaged during said time in the lawful and ethical practice of the profession of physician and surgeon. Not more than four members shall be affiliated with the same political party. The first members of the board herein created shall be appointed as follows: two members for a term of two years, two members for a term of three years, and three members for a term of four years; and thereafter all members shall be appointed for a term of four years. Each member of the board shall receive $25.00 per day and his actual and necessary expenses for the time actually employed in the discharge of his duties.

2. The board shall elect its own president and secretary, each to serve for a term of one year, and shall maintain an office and employ an executive secretary and such other employees, referees, and professional personnel as the board in its discretion deems necessary, who shall perform such duties as the board directs. Without limiting the foregoing, the board is specifically authorized to obtain the services of specially trained and qualified persons or organizations to assist in conducting examinations of applicants for licenses. The executive secretary shall have the degree of Bachelor of Arts or its equivalent in college credits. The board shall meet annually in Jefferson City and at such other times and places as the members of the board may designate, and shall keep a record of its proceedings and a register of all applicants for certificates of licensure. The records and register shall be prima facie evidence of all matters recorded therein. Four members of the Board shall constitute a quorum, at

least one of whom shall be a graduate of a professional school approved and accredited as reputable by the American Medical Association, and at least one of whom shall be a graduate of a professional school approved and accredited as reputable by the American Osteopathic Association.

3. The board shall have a common seal and shall formulate rules and regulations to govern its actions. Provision shall be made by the Division of Public Buildings for office facilities in Jefferson City, Missouri, where the records and register of the board shall be maintained.

4. The President and Secretary shall have power to administer oaths and to subpoena witnesses to require attendance and testimony and to require production of documents and records; and to that end the board may invoke the aid of the circuit court of any county of the state having jurisdiction over the witness, and any failure to obey the order of the court may be punished by the court as a contempt thereof.

Section 3. 1. Except as provided in paragraph 1 of Section 22 of this Act, all persons desiring to practice as physicians and surgeons in this state shall appear before the board at such time and place as the board may direct and be examined as to their fitness to engage in such practice. All persons applying for examination shall make application in writing to the board at least thirty days before the date set for examination upon blanks furnished by the board.

2. The examination of candidates for licenses to practice as physicians and surgeons shall be in two parts or sections, and shall be known as Part I and Part II. Part I of the examination may be given at the completion of two years of the professional education required by this section, or may be taken in conjunction with the examination required under Part II. Part I shall be given by the board and shall be taken and passed by all applicants, and the examination given at any particular time shall be the same for all candidates and the same subjects shall be included and the same questions shall be asked. The board shall not be permitted to favor any particular school or system of healing. Part I of the examination shall embrace, in relation to the entire human body, the subjects of anatomy, histology, pathology, physiology, bacteriology or microbiology, biochemistry, physical diagnosis, sanitation and hygiene. No candidate shall be held to have passed Part I of the examination unless he has made an average grade of seventy-five per cent or more on the several subjects embraced therein with no grade lower than sixty per cent on any one subject.

3. Part II of the examination shall be given by the board and shall be taken by each candidate and successfully passed with an average grade of seventy-five per cent or more on the several subjects embraced in the examination with no grade lower than sixty per cent on any one subject. After the effective date of this act, except as specifically provided for licensing applicants from other states or under paragraph 7 of this section, and except for persons now holding certificates of licensure under Chapters 334 and 337, RSMo 1949, no license of any kind may be issued to any person by the board until he has successfully passed Part I and Part II of the examination.

4. For candidates applying for certificates of licensure to practice as physicians and surgeons, Part II of the examination shall embrace the subjects taught in reputable professional colleges, sufficiently strict to test the qualifications of the candidates as practitioners.

5. Examinations shall be written, and the examination papers shall be preserved by the board subject to public inspection for a period of three years, after which they may be destroyed. Examinations on each subject shall consist of not less than five questions, each question to have equal weight and equal grade value.

6. Candidates for licenses as physicians and surgeons shall be citizens of the United States and shall furnish satisfactory evidence of their good moral character, and their preliminary qualifications, to-wit: a certificate of graduation from an accredited high school or its equivalent, and satisfactory evidence of completion of preprofessional education consisting of a minimum of sixty semester hours of college credits in acceptable subjects leading towards the degree of Bachelor of Arts or Bachelor of Science from an accredited college or university. They shall also furnish satisfactory evidence of having attended throughout at least four terms of thirty-two weeks of actual instructions in each term and of having received a diploma from some reputable medical college or osteopathic college that enforces requirements of four terms of thirty-two weeks for actual instruction in each term, including, in addition to class work, such experience in operative and hospital work during the last two years of instruction as is required by the American Medical Association and the American Osteopathic Association before the college is approved and accredited as reputable. Any medical college approved and accredited as reputable by the American Medical Association and any osteopathic college approved and accredited as reputable by the American Osteopathic Association is deemed to have complied with the requirements of this paragraph.

7. In determining the qualifications necessary for licensure as a qualified physician and surgeon the board may at its discretion accept the certificate of the National Board of Medical Examiners of the United States, chartered under the laws of the District of Columbia, of the National Board of Examiners for Osteopathic Physicians and Surgeons chartered under the laws of the State of Indiana, in lieu of and as equivalent to its own professional examination. Every applicant for a license on the basis of such certificate, upon making application showing necessary qualifications as above set out, shall be required to pay the same fee required of applicants to take the examination before the board.

8. On the licenses issued by the board, the board shall enter the name of the licensee and the degree to which the licensee is entitled by reason of his diploma of graduation from a professional school approved and accredited as reputable by the American Medical Association and approved or accredited as reputable by the American Osteopathic Association.

Section 4. Upon the applicant paying a fee of $100, the Board may, under regulations prescribed by it, admit without examination legally qualified persons who have met the educational requirements of this state, and who hold certificates of licensure in any state or territory of the United States or the District of Columbia authorizing them to practice in the same manner and to the same extent as physicians and surgeons are authorized to practice by this act. Within the limits of this paragraph, the Board is authorized and empowered to negotiate reciprocal compacts with licensing boards of other states for admission of licensed practitioners from Missouri in other states.

Section 5. 1. There is hereby established in the office of the State Treasurer a fund to be known as the "Board of Registration for the Healing Arts Fund." All fees of any kind and character authorized to be charged by the board shall be paid to the Director of Revenue and shall be deposited by the State Treasurer into this fund, to be disbursed only in payment of expenses of maintaining the board and for the enforcement of the provisions of this act; and no other money shall be paid out of the State Treasury for carrying out the provisions of this act. Warrants shall be issued on the State Treasurer for payment out of said fund on the certification of the president and secretary of the board.

2. The board shall charge each person applying to and appearing before it for examination for certificate of licensure to practice as physician and surgeon, a fee of Twenty-five Dollars, $12.50 of which is for taking Part I of the examination and $12.50 of which is for taking Part II of the examination. Should the examination prove unsatisfactory and the board refuse to issue a license thereon, the applicant failing to pass the examination may return to any meeting within twelve months after the first examination and be examined without extra charge; but no temporary license may be issued to such persons.

Section 6. 1. Every person holding a license from the board shall have it recorded in the office of the county clerk of the county in which he maintains an office and the record shall be endorsed thereon. The clerk is authorized to charge a fee of $1.00 for recording the license, to be paid by the person offering it for record. Any person removing to another county to practice shall have his license recorded in the county to which he removes, and the holder of the license shall pay the clerk of said county the usual fee for making the record. The county clerk shall keep, in a book provided for that purpose, a complete list of the licenses recorded by him, with the date of issue.

2. Any person neglecting to record his license before entering upon the practice shall be guilty of a misdemeanor, and, on conviction thereof, shall be fined not less than $50.00, and on failure to record said license for thirty days after such conviction he shall be liable to a fine of not less than $100.00.

Section 7. 1. Upon due application therefor and upon submission by such person of evidence satisfactory to the board that he is licensed to practice in this state, and upon the payment of fees required to be paid by this act, the board shall issue to him a certificate of registration under the seal of the board, which shall recite that he is duly registered for the year specified. The certificate of registration shall contain the name of the person to whom it is issued and his office address and residence address, the date and number of the license to practice, and such other information as the board deems advisable.

2. Every person shall, upon receiving such certificate, cause it to be conspicuously displayed at all times in every office maintained by him in the state. If he maintains more than one office in this state, the board shall without additional fee issue to him duplicate certificates of registration for each office so maintained. If any registrant shall change the location of his office during the year for which any certificate of registration has been issued, he shall, within fifteen days thereafter, notify the board of such change and it shall issue to him without additional fee a new registration certificate showing the new location.

Section 8. 1. Every person licensed under the provisions of this act shall on or before the thirtieth day of June following the date on which this act becomes effective, and on or before the thirtieth day of June of each year thereafter, apply to the board for a certificate of registration for the ensuing year. The application shall be made on a form furnished by the board, and shall state the applicant's full name and his office and residence addresses and the date and number of his license, and such other facts as tend to identify him and his license, as the board may deem necessary. If the first registration called for by this paragraph occurs during an even numbered year, the certificate to be issued shall be for a one year period, and credit shall be given for any fees paid under any prior law for a certificate of registration for the same period.

2. The board shall on or before the 1st day of June of each year mail to each person licensed in this state at his last known office or residence address, a blank form for application for registration. The failure to mail the form of application or the failure to receive it does not, however, relieve any person of the duty to register and pay the fee required by this act nor exempt him from the penalties provided by this act for failure to register.

Section 9. Each applicant for registration under this act shall accompany the application for registration with a registration fee in the sum of $2.50 to be paid to the director of revenue for the year for which registration is sought. If the application is filed and the fee paid after July first of the year in which registration is sought, the amount of such fee shall be the sum of $2.50, plus an additional 50 cents for each month or part thereof from July first of such year to the date when the application is filed and fee paid; but whenever in the opinion of the board the applicant's failure to register is caused by extenuating circumstances including illness of the applicant, the additional fee of 50 cents may be waived by the board. Whenever any new license is granted to any person under the provisions of this act, the board shall, upon application therefor, issue to such licensee a certificate of registration covering a period from the date of the issuance of the license to June 30th next following the date of issuance of the license without the payment of any registration fee.

Section 10. 1. The board may refuse to license individuals of bad moral character, or persons guilty of unprofessional or dishonorable conduct; and it may, on its own information or on complaint of any person, revoke or suspend licenses, or other rights to practice, however derived, for like causes as hereinafter provided. Without limiting the foregoing general language, the following specifications shall be deemed unprofessional and dishonorable conduct within the meaning of this section:

(a) Knowingly making or presenting, or causing to be made or presented, any false, fraudulent or forged statement, certificate, diploma, or other thing in connection with an application for license or registration certificate;

(b) Practicing, or aiding or abetting in the practice of fraud, forgery, deception, collusion or conspiracy in connection with an examination for license;

(c) Committing an unlawful abortion;

(d) Conviction of a felony involving moral turpitude;

(e) Addiction to a drug habit;

(f) Chronic or persistent alcoholism;

(g) Engaging in dishonorable, unethical or unprofessional conduct of a character likely to deceive, defraud or harm the public;

(h) Knowingly making, or causing to be made, or aiding, or abetting in the making of, a false statement in any birth, death or other certificate or document executed in connection with the practice of his profession;

(i) Soliciting patronage in person or by agents or representatives, or by any other means or manner, under his own name or under the name of another person or concern, actual or pretended;

(j) Using, or permitting the use of, his name under the designation of "Doctor", "Dr.", "M.D." or "D.O.", or any similar designation with reference to the commercial exploitation of any goods, wares or merchandise;

(k) Developing such physical or mental disability, or other condition, that continued practice is dangerous to patients or to the public.

2. At least twenty days prior to the date set for any hearing before the board for the revocation or suspension of license, the secretary shall cause written notice to be served personally upon the accused wherever he may be found in the state, in the manner prescribed for the serving of original writs in civil actions. If the accused cannot be found in this state, the board shall cause the notice to be published for a period of not less than twenty days in a newspaper of general circulation in the county in which the accused maintained his last known residence in this state, the last publication to be not less than twenty nor more than thirty days prior to the date set for hearing. The notice shall contain an exact statement of the charges and the date and place set for the hearing before the board. If the party thus notified fails to appear, either in person or by counsel, the board shall proceed with the hearing. The board may receive and consider depositions and oral statements, and shall cause stenographic reports of the oral testimony to be taken and transcribed, which, together with all other papers pertaining thereto, shall be preserved for two years. If a majority of the board is satisfied that the licentiate is guilty of any of the offenses charged, the license shall be revoked or suspended for such period of time as may be determined. Before the license is revoked, there shall be included in the majority of the board voting for the revocation, the vote of at least one board member, if any, who is a graduate of a professional school approved and accredited as reputable by the Association which has approved and accredited as reputable the professional school from which the licentiate himself graduated.

3. Any person whose license is revoked or suspended by the board shall have the right to have the proceedings reviewed as provided by law for the review of decisions, rules and regulations of administrative officers and bodies existing under the constitution and laws of this state.

Section 11. Any person licensed to practice as physician and surgeon in this state who has retired or who may hereafter retire from such practice shall not be required to register as required by this act, if he files with the board an affidavit, on a form to be furnished by the board, which states the date on which he retired from such practice and such other facts as tend to verify the retirement as the board may deem necessary; but if he thereafter re-engages in the practice, he shall register with the board as provided by this act.

Section 12. Whenever in this act any duty or service is required to be performed by any county clerk, the duty or service in the City of St. Louis shall be performed by the health commissioner, as if he was specially named to perform these duties and services, and he shall receive the same compensation therefor as this act provides shall be paid to the county clerk; and whenever in this act the word county is used it shall include the City of St. Louis the same as if said city is specially named.

Section 13. It is not intended by Sec-

tions 1 to 12 and 18 to prohibit isolated or occasional gratuitous service to and treatment of the afflicted, and Sections 1 to 12 and 18 shall not apply to physicians and surgeons commissioned as officers of the Armed Forces of the United States or of the Public Health Services of the United States while in the performance of their official duties, nor to any licensed practitioner of medicine and surgery in a border state attending the sick in this state, if he does not maintain an office or appointed place to meet patients or receive calls within the limits of this state, and if he complies with the statutes of Missouri and the rules and regulations of the department of public health and welfare relating to the reports of births, deaths and contagious diseases; and Sections 1 to 12 and 18 shall not apply to Christian Science practitioners who endeavor to cure or prevent disease or suffering exclusively by spiritual means or prayer, so long as quarantine regulations relating to contagious diseases are not infringed upon; but no provision of this section shall be construed or held in any way to interfere with the enforcement of the rules and regulations adopted and approved by the division of health of the state department of public health and welfare or any municipality under the laws of this state for the control of communicable or contagious diseases.

Section 14. Except as provided in the last sentence of paragraph 6 of this act, the question as to whether any school is one entitled to recognition by the board as a reputable professional school of good standing, and the action of the board in refusing to permit an applicant to take an examination, is declared to be a question of fact, and any person aggrieved by the action of the board has the right to have the question reviewed as provided by law for the review of the decisions, rules and regulations of administrative officers or bodies existing under the constitution or by law.

Section 15. Any officer, agent or employee of any professional school or college, whether organized as a corporation, association, partnership, common law trust, or individually owned and operated, who knowingly permits the issuance of any diploma or any certificate of graduation from any such school or college as aforesaid to anyone or anyone who knowingly accepts or receives such certificate or diploma, unless the recipient or beneficiary thereof has actually attended in good faith at least eighty per cent of the minimum curriculum prescribed in this act for such character of schools in this or some other state, and has received instruction in and has satisfactorily passed all the courses and subjects purporting to be required by said school for completion of its course and has actually been granted a degree by vote of the trustees of said college or school, shall be guilty of a misdemeanor.

Section 16. This act does not apply to dentists licensed and lawfully practicing their profession within the provisions of Chapter 332; to nurses licensed and lawfully practicing their profession within the provisions of Chapter 335; to Optometrists licensed and lawfully practicing their profession within the provisions of Chapter 336; to pharmacists licensed and lawfully practicing their profession within the provisions of Chapter 338; to chiropodists licensed and lawfully practicing their profession within the provisions of Chapter 330; or to chiropractors licensed and lawfully practicing their profession within the provisions of Chapter 331, RSMo 1949.

Section 17. It is unlawful for any person licensed as a midwife only to engage in any other branch of medical practice or to advertise herself as doctor, doctress or physician or to use any letters before or after her name on a sign or otherwise, indicating that she is authorized to or does engage in any other branch of medical practice.

Section 18. It shall be unlawful for any person not now a registered physician within the meaning of the law to practice medicine or surgery in any of its departments, or to profess to cure and attempt to treat the sick and others afflicted with bodily or mental infirmities, or engage in the practice of midwifery in this state, except as herein provided.

Section 19. 1. Any person who violates Section 18 of this act shall, upon conviction, be adjudged guilty of a misdemeanor for each and every offense; and treating each patient is considered a separate offense.

2. Any person filing or attempting to file as his own a license of another or forged affidavit of identification, shall be guilty of a felony and upon conviction thereof shall be subjected to such fine and imprisonment as is provided by the statutes of this state for the crime of forgery in the second degree.

3. Upon receiving information that any provision of Sections 17, 18 and 19 of this act has been or is being violated, the secretary of the board or other person designated by the board shall investigate, and upon probable cause appearing, the secretary shall, under the direction of the board, file a complaint with the prosecuting or circuit attorney of the county or city where the alleged offense occurred.

Section 20. If it appears upon complaint to the board by any person, or it is known to the board that any person is violating any of the provisions of this Act, the board, by its own proper counsel, or the prosecuting attorney of the proper county, or the Attorney General may investigate and may, in addition to any other remedies, bring action in the name of and on behalf of the State of Missouri at the relation of the board against any such person to enjoin him from such violation. The action may be commenced in the county in which the defendant resides or in the county in which the defendant engages in or attempts to engage in the matters complained of. The pleadings, practice and procedure in such action shall be in accordance with the law of this state governing injunctions generally, except that the injunction may be issued without proof of actual damage sustained by any person or proof that any person will sustain damage if the injunction is not granted.

Section 21. A licensee under this act shall, in any letter, business card, advertisement, prescription blank, sign, or public listing or display of any nature whatsoever, designate the degree to which he is entitled by reason of his diploma of graduation from a professional school approved and accredited as reputable by the American Medical Association or approved and accredited as reputable by the American Osteopathic Association.

Section 22. 1. On the effective date of this Act all persons licensed under the provisions of Chapter 334 as practitioners of medicine and surgery and all persons licensed under the provisions of Chapter 337 as osteopathic physicians shall be deemed to be licensed as physicians and surgeons under this act and subject to all of the provisions of this act.

1a. Any person who has attended any certified college of physicians and surgeons, organized and existing within the state of Missouri for four years, and who has received a graduating diploma therefrom, who has been engaged as an intern or a resident physician in any hospital within the state of Missouri for at least one year, who has been actively engaged in the practice of medicine for at least thirty-two years in the state of Missouri, and in the locality in which he resides for at least twenty years next before the passage of this act, who has never been convicted of a crime, and who bears an excellent reputation as a conscientious and ethical practitioner of medicine, shall be admitted without examination to practice medicine in the state of Missouri. Any person admitted to practice medicine under this sub-section shall pay a fee of $100.00.

2. On the effective date of this Act all persons licensed under the provisions of Chapter 334 as midwives shall be deemed to be licensed as midwives under this act and subject to all of the provisions of this act.

3. On the effective date of this Act all funds in the state treasury deposited to the credit of the state board of medical examiners fund as provided by Chapter 334, and all funds in the state treasury deposited to the credit of the board of osteopathy fund as provided by Chapter 337, shall be transferred to and deposited into a new fund designated as the "Board of Registration for the Healing Arts Fund", and to the extent that the various funds so transferred may be adequate all appropriations heretofore made against the funds mentioned herein shall be valid and shall be deemed to have been made against the board of registration for the healing arts fund.

4. Where other statutes of this state use the terms physician, surgeon, practitioner of medicine, practitioner of osteopathy, Board of Medical Examiners, or Board of Osteopathic Registration and Examination or similar terms, they shall be construed to mean physicians and surgeons licensed under this act or the State Board of Registration for the Healing Arts in the State of Missouri.

Approved, June 18, 1959

*This section is published monthly to inform the practicing physician about new drug products and medical equipment made available on the market. It is a reference section prepared by* THE JOURNAL *from descriptive material furnished by ethical manufacturers. The American Osteopathic Association does not necessarily advocate the use of these products nor disapprove any product not included. The purpose of the section is to provide trustworthy information in a convenient form.*

# NEW PRODUCTS

## HYVA™ GENTIAN VIOLET VAGINAL TABLETS

**Indications** • Candidiasis, vulvitis, mixed infections.

**Composition** • Hyva Gentian Violet Tablets combine 1.0 mg. gentian violet with 0.5 mg. alkyldimethylbenzylammonium chloride (surface active chemical), 10.0 mg. polyoxyethylenenonylphenol, and 5.0 mg. polyethylene glycol tert-dodecylthioether.

**Pharmacologic action** • The combination exerts both fungicidal and bactericidal effects.

**Advantages** • Because of the mild effervescent "gel" forming base, maximum and prolonged effectiveness is obtained without the attendant staining and messiness usually experienced. The tablet may be handled without residual staining.

**Precaution** • Severe vulvar dermatitis requires systemic treatment before using Hyva.

**Treatment method** • Patients are instructed to insert a tablet high into the vagina nightly for a period up to 12 days. Pregnant patients may require a slightly longer period, and if treatment is continued into the last trimester of pregnancy, the patient is instructed to insert the tablet less far into the vagina. In nonpregnant patients, if a douche is desired it may be taken in the morning soon after arising, preferably with Nylmerate Solution Concentrate (available only on prescription). Patients should be advised to refrain from coitus during the treatment period, and to return for examination after the first week of treatment and thereafter every 2 weeks until three negative smears are obtained. A sanitary pad may be recommended, although staining may not occur.

**Clinical evidence** • Specific clinical evidence on Hyva Gentian Violet Vaginal Tablets is at present available only through private communication. Reports on the use of gentian violet, however, and its specificity in mycotic infections, have appeared in the press over a number of years.

**How supplied** • Packages of 12 tablets, hermetically sealed in foil, with plunger applicator. Boxes of 36 tablets, each hermetically sealed.

**Manufacturer** • Holland-Rantos Company, Inc., 145 Hudson St., New York 13, N. Y.

## HYPTRAN

**Indications** • Insomnia associated with tension and anxiety generated by pressures of everyday living, business activities, and disease processes.

**Composition** • Hyptran is a dual-release hypnotic preparation combining phenyltoloxamine and secobarbital. The outer shell of the tablet contains, for immediate release, 60 mg. secobarbital and 25 mg. phenyltoloxamine. The delayed-release core contains 75 mg. phenyltoloxamine. Secobarbital is a barbiturate with rapid onset and 2-3 hours of hypnotic action. Phenyltoloxamine dihydrogen citrate is a white crystalline powder soluble in water; it melts with decomposition at temperatures between 136 and 141 C.

**Pharmacologic action** • Phenyltoloxamine is a phrenotropic agent with antihistaminic properties; its effects are sedative, hypnotic, and tranquilizing. Phenyltoloxamine and secobarbital are readily absorbed from the gastrointestinal tract. As yet very little is known of the destruction of phenyltoloxamine, or its conjugation or excretion, although it has been shown that repeated large doses are well tolerated without evidence of cumulative effect. Secobarbital is mainly degraded by the liver.

**Advantages** • Phenyltoloxamine offers sedation of high effectiveness and safety; it is more effective than meprobamate and phenobarbital in relieving motivational anxieties. The drugs contained in Hyptran offer ease of sleep induction, reliable maintenance of sleep, safety in the low barbiturate content, and virtual absence of side effects or hangover.

**Precautions** • Because of its secobarbital content, Hyptran carries the usual caution label against habit formation.

**Contradindications** • On theoretical grounds, advanced liver dysfunction should be considered a contraindication to the use of Hyptan tablets, inasmuch as secobarbital depends on the liver for its degradation, while the exact method of degradation of phenyltoloxamine has not as yet been established.

**Clinical evidence** • In a combined study with the cooperation of six investigators, Hyptran was tried in 261 hospitalized patients. These patients were not selected, and in many instances their insomnia was related to disease, recent surgical operations, or psychiatric disturbances. A dosage of 1 tablet at bedtime was used with 175 patients; 86 patients received a dosage of 2 tablets and in some instances 3. In 244 patients sleep was induced in less than 1 hour, and the duration of sleep was 5 hours or more in 226 cases. Seven patients complained of hangover, a figure comparable to that obtained by others with placebo studies.

**References** • Batterman, R. C., and others, New York State J. Med. 58:3821, 1958. DiMascio, A., and others, Am. J. Psychiatry 115:301, 1958. Sainz, A., Proc. Mohawk Valley Psychiat. A., June 17, 1957. Fleischmajer, R., Blau, S., and Kanof, N., Antibiotic Med. & Clin. Therap. 5:120, 1958. Hoekstra, J. B., and others, J. Am. Pharm. A. 42:587, 1953. Cronk, G. H., and Naumann, D. E., New York York State J. Med. 55:1465, 1955.

**Dosage** • 1-2 tablets taken shortly before bedtime.

**How supplied** • Bottles of 100 dual-release Hyptran Tablets.

**Manufacturer** • Wampole Laboratories, 35 Commerce Road, Stamford, Conn.

## MAALOX® No. 2

**Indications** • Gastric hyperacidity, gastritis, heartburn, and peptic ulcer.

**Composition** • Each Maalox No. 2 tablet (double strength) contains 0.8 gram of combined magnesium and aluminum hydroxides.

**Pharmacologic action** • Maalox is a gastric antacid which does not cause acid rebound, stomach irritation, or release of carbon dioxide in the presence of hydrochloric acid.

**Advantages** • Maalox has a superior antacid action and will not cause constipation. The tablets have a pleasant flavor and are easy to chew. Each double strength tablet is equivalent to 2 regular Maalox tablets or 2 teaspoonfuls of Suspension Maalox.

**Precaution** • Patients should be warned not to attempt to swallow the tablets whole; the action of the drug is enhanced by chewing.

**Dosage** • One or two tablets well chewed, 20 minutes to 1 hour after meals and at bedtime. The tablets may be followed by water or milk if desired.

**How supplied** • Bottles of 50 and 250 tablets. A plastic box to carry up to 8 tablets is included with each bottle of 50.

**Manufacturer** • William H. Rorer, Inc., 4865 Stenton Ave., Philadelphia 44, Pa.

**DBI***

**Indications** • Oral treatment in diabetes mellitus, with or without injected insulin. DBI is indicated for those patients whose diabetes is not controlled by diet alone, juvenile and adult "brittle" diabetics, insulin-resistant patients, and those who do not respond to sulfonylurea.

**Composition** • DBI, brand of phenformin, is $N^1$-$\beta$-phenethylbiguanide hydrochloride, a synthetic organic compound. It is a white, crystalline, water-soluble substance, chemically different from other oral hypoglycemic agents.

**Pharmacologic action** • DBI lowers elevated blood sugar and eliminates glycosuria in mild, moderate, and severe diabetes mellitus. In brittle diabetes (juvenile or adult), DBI combined with insulin improves regulation of diabetes and helps prevent wide excursions between hypoglycemic reactions and hyperglycemic ketoacidosis. In stable adult diabetes, DBI alone often achieves satisfactory regulation without necessity for insulin injections. In juvenile diabetes, DBI often permits a reduction of 50 per cent or more in daily insulin requirement.

**Advantages** • DBI has a wider range of clinical usefulness than the sulfonylureas. It is often effective in insulin-resistant patients and in primary and secondary sulfonylurea failures. Daily administration in therapeutic dosage for varying periods up to 2½ years has not produced any form of clinical toxicity.

**Precautions** • Except for occasional transient lassitude or general weakness, side effects are solely gastrointestinal, and abate promptly with adjustment in dosage. Every precaution should be observed to avoid acidosis and coma or hypoglycemic reactions at all times, and particularly during the initial period of dosage adjustment. Ketonuria in the presence of relatively normal blood sugars and low or absent glycosuria suggests the "starvation" phenomenon and must be differentiated from the ketoacidosis of insufficient insulin. Caution should be observed in the use of DBI in the presence of severe pre-existing hepatic disease.

**Contraindications** • The use of DBI alone is not recommended in the acute complications of diabetes such as acidosis, coma, infections, gangrene, or surgical problems. DBI is an extremely potent drug and should not be made accessible to those who are unfamiliar with its activity.

**Clinical evidence** • It is generally agreed that DBI is capable of lowering blood and urine sugars in a wider range of diabetic patients than any other known oral hypoglycemic drug. Exhaustive studies —basic, clinical, and toxicologic— have been carried out with DBI, and information about available literature may be obtained from the manufacturer.

**Dosage** • The dosage of DBI must be individualized; it is best to start with low doses and adjust the amounts gradually upward to effective levels. There is no direct relationship between insulin requirements and DBI dosage. DBI should be administered orally with meals, in divided doses, two or three times a day according to the patient's needs. The initial dose usually is 25 mg. twice daily, with a gradual daily increase of 25 mg. every 3 or 4 days. A daily dose of 150 mg. appears to be the practical maximum. Simultaneously with the increase in DBI dosage, insulin dosage is gradually decreased.

**How supplied** • Bottles of 100 white, scored tablets, 25 mg.

**Manufacturer** • U.S. Vitamin & Pharmaceutical Corporation, 250 East 43rd St., New York 17, N.Y.

*DBI is a trademark for phenformin.

## VASODILAN®

**Indications** • Vasodilan is indicated for disorders associated with arterial insufficiency and uterine hypermotility. The first group includes arteriosclerosis obliterans, diabetic vascular disease, Buerger's disease, Raynaud's disease, and hypertensive and arteriosclerotic cerebral vascular insufficiency. In the second group are such disorders as threatened abortion, premature labor, and painful menstrual cramping.

**Composition** • Vasodilan (isoxsuprine hypochloride, Mead Johnson) is 1-(p-hydroxyphenyl) -2- ($1^1$-methyl - $2^1$ - phenoxyethylamino) propanol- 1 hydrochloride.

**Pharmacologic action** • Vasodilan acts directly on the smooth muscles of blood vessels and the uterus, inducing relaxation, vasodilation, and antispasmodic effects. The drug exerts some adrenergic-blocking action, but the effect is minor and is not essential to the vasodilating action.

**Advantages** • The drug is effective by mouth as well as parenterally, and has no known toxic effects on blood, liver, or kidneys. It is relatively simple to use and well adapted for long administration; the therapeutic effect lasts 3 hours. No allergic reactions have been noted; the drug appears to be comparatively free of side effects in the average oral doses.

**Precautions** • Vasodilan should be used with care in the presence of pronounced hypotension or tachycardia or in acute severe myocardial insufficiency. If hypotension and tachycardia occur as side effects of parenteral administration, these effects may be controlled by reduction of dosage.

**Contradindications** • There are no known contraindications to the oral use of Vasodilan in the recommended doses. Intravenous administration is not recommended.

**Clinical evidence** • An extensive review of clinical and pharmacologic studies with Vasodilan will appear in the August 1959 issue of *Angiology* (advance prepublication reprints made available with the approval of the editorial board).

**Dosage** • Average adult oral dose is one or two tablets three to four times daily; average parenteral (intramuscular) dose is 2 cc. (5-10 mg.) three or four times daily.

**How supplied** • As 10 mg. tablets in bottles of 100, and as Vasodilan Injection in boxes of six 2 cc. ampuls, each containing 5 mg. (1 cc.).

**Manufacturer** • Vasodilan was developed in Europe by the N. V. Philips-Roxane firm in cooperation with the Pharmacological Institute of the University of Vienna. It is available in the United States from Mead Johnson & Company, Evansville 21, Ind.

**STELAZINE***

**Indications** • To relieve anxiety and restore normal drive in patients who are apathetic, listless, and emotionally fatigued; to relieve anxiety either accompanying or causing somatic conditions (e.g. gastrointestinal disturbances, tension headache, and asthma); to improve appetite and sleep patterns in cases involving anorexia and insomnia.

**Composition** • Each Stelazine tablet contains 1 mg. of trifluoperazine (10-[3-(1 methyl-4-piperazinyl)-propyl]-2-trifluoromethyl-phenothiazine), as the dihydrochloride.

**Pharmacologic action** • Studies in animals have shown that Stelazine exerts a psychopharmacologic effect as indicated by block of the conditioned response. The drug is a weak potentiator of barbiturates and has little hypotensive activity; it has antiemetic activity. In studies of chronic toxicity, no clinicopathologic changes were observed in dogs and rats given daily doses of the drug for periods up to 6 months. Histopathologic studies showed no changes attributable to Stelazine.

*Trademark.

**Advantages** • Stelazine appears to be effective in many cases in which patients fail to respond, or respond poorly, to meprobamate, prochlorperazine, thiopropazate, phenobarbital, mepazine, chlorpromazine, or promazine. Since the drug tends to restore natural sleep patterns, patient acceptance is high. It is possible to obtain full therapeutic effect rapidly and with extremely small doses. Administration is convenient—because of the drug's inherent long action, doses need be given only twice daily; morning and evening doses give round-the-clock protection. In the recommended dosage range, side effects are usually slight and transitory, and rarely affect the course of treatment. Occasional instances of drowsiness, dizziness, or stimulation may be observed.

**Precautions** • Clinicians should remain alert to the possible occurrence of toxic manifestations such as jaundice or agranulocytosis which have been reported occasionally with some phenothiazine compounds, although such conditions have not been reported in connection with Stelazine. If Stelazine is used in patients who should limit their activity, as for example in angina pectoris, they should be carefully observed for the possible adverse effect of increased mental and physical activity. Also, because Stelazine has an antiemetic effect, it may mask signs of overdosage of toxic drugs or obscure the diagnosis of such conditions as intestinal obstruction and brain tumor.

**Contraindications** • Stelazine is contraindicated in comatose or greatly depressed states due to central nervous system depressants.

**Clinical evidence** • Stelazine has been used in the treatment of a wide variety of conditions in over 12,000 patients. Reports show the drug to be effective in relieving agitation and tension, as well as anxiety manifested as apathy, listlessness, and emotional fatigue. Restoration of normal energy and drive has not been accompanied by undue euphoria. Stelazine has been found effective also in relieving the worry and discouragement often associated with such somatic conditions as arthritis, neurodermatitis, cancer, herpes zoster, asthma, and chronic neuralgia. Satisfactory results have been reported in the treatment of gastrointestinal tension states, tension headache and migraine, premenstrual tension, and senile agitation and confusion. Where anorexia and insomnia have been problems, Stelazine usually has produced marked improvement in appetite and sleep patterns.

**References** • Gearren, J. B., Dis. Nerv. System 20:66, Feb. 1959. Margolis, E. J., and others, Scientific Exhibit at 12th Clinical Meeting of the A.M.A., Dec. 1958. Phillips, F. J., and Shoemaker, D. M., Scientific Exhibit at 12th Clinical Meeting of the A.M.A., Dec. 1958.

**Dosage** • Administration and dosage of Stelazine should be adjusted to the individual case. The usual starting dosage for adult patients is 1 mg. twice a day. The usual optimum dosage is 2 to 4 mg. per day, in divided doses.

**How supplied** • Tablets, 1 mg., in bottles of 50 and 500. For the treatment of psychiatric patients who are either hospitalized or under close supervision on an outpatient basis, Stelazine is available in 2 mg., 5 mg., and 10 mg. tablets, and 10 cc. multiple-dose vials (2 mg./cc.). Literature on the use of the drug in these higher doses is available from the Medical Department of Smith Kline & French Laboratories.

**Manufacturer** • Smith Kline & French Laboratories, Philadelphia 1, Pa.

# Current Literature

## Influence of air conditioning on hospitalized patients

► AIR CONDITIONING has been found especially important for patients with heart disease, in studies carried out by George E. Burch, M.D., and Nicholas DePasquale, M.D., as reported in the *Journal of the American Medical Association* for May 9, 1959. In the authors' opinion, air conditioning of the environment of a debilitated and chronically ill patient is a useful adjunct to therapy which has not received the emphasis in medical literature that it deserves.

At the Charity Hospital, New Orleans, 88 patients were studied in the air-conditioned ward and 75 patients in the open, warm, and humid ward exposed to the outside weather during July and August. Numerical data on circulatory and respiratory functions were supplemented by systemic notes on the appearance and behavior of the patients. Although the average age of the patients in the air-conditioned ward was 5 years greater, their mean systolic blood pressure was lower, pulse rate slower, and oral temperatures lower than those of the patients in the non-air-conditioned ward. Three cases are described in detail to show that in some situations the transfer from the warm, humid ward to the air-conditioned ward was decisive in bringing about the patient's recovery. Response was most dramatic in a case of status asthmaticus. In the whole series there were nine instances of unfavorable response, largely subjective. In addition to the more objective findings, air conditioning improved the morale of both patients and attending personnel, fostered a calm and quiet atmosphere, removed allergens from the environment, eliminated sweating, and increased the tolerability of enforced bed rest.

## Assessment of varicose veins with the "retrograde leg-milking" test

► A METHOD FOR detecting valvular insufficiency before surgical treatment of varicose veins is carried out is reported by John Armes Gius, M.D., in *Postgraduate Medicine* for March 1959. The pattern of valvular incompetency, and therefore of varicose veins, varies greatly from patient to patient. Although conventional methods for assessing valvular function are extremely useful in the hands of experienced persons, they are apt to fail when used by the inexperienced. The author suggests the "retrograde leg-milking" test as a simple procedure which is applicable to nearly all patients with varicose veins. The test, details of which are given in this article, combines many features of other tests used in the study of varicose veins. The veins of the legs are emptied by compression rather than by elevation, as in the Trendelenburg test. Compressing the leg from below and upward to the level of the tourniquet simulates the action of the leg-muscle pump, which is used to advantage in the Perthes test. In the leg-milking test, however, the patient does not have to move the leg. In some cases the Valsalva maneuver may be used to reveal latent insufficiency. The author reports a high correlation between the findings in this test and the findings at operation, in patients treated largely by resident surgeons. Occasionally, tenderness or ulceration of the leg precludes use of the test, and in rare cases the legs are so large that compression with the hands is impractical. Under these conditions the conventional methods should be used. Careful interpretation of results is highly important, for in some cases the findings may indicate a deeper-lying disorder, such as extensive thrombosis, which would affect the choice of operative procedure.

## The management of staphylococcal disease in infants and children

► THE AWESOME adaptability of Staphylococcus aureus has greatly changed the clinical pattern and treatment of staphylococcal diseases during the past 10 years. Martha Dukes Yow, M.D., Murdina M. Desmond, M.D., and Laurance N. Nickey, M.D., have reviewed 400 cases among children treated at the Jefferson Davis Hospital from August 1956 to August 1958, and their findings are reported in *The Journal of Pediatrics*, April 1959.

Of the 400 cases of staphylococcal disease, the treatment was suitable for analysis in 204. Eighty per cent of the infections were acquired in hospital locales. The disease was considered mild in 66 cases, and moderate to severe in 138. It was found that the age of the patient influenced morbidity and mortality. Among the patients with serious staphylococcal disease, the mortality rate was 43 per cent in premature infants, 26 per cent in full-term newborn infants, 21 per cent in children from 2 months to 2 years of age, and 11.7 per cent in older children. The degree of dissemination also was highest in young infants. In fact, all staphylococcal infections in young infants must be considered potentially serious because of the unpredictable course of such diseases in this age group.

Superficial infections in older children may be safely treated with local therapy, but the best method of managing such infections in young infants is not certain, now that most of these infections are due to the highly invasive strain 81. Subcutaneous abscesses may be treated with antistaphylococcal drugs and local

care, but whereas the drug may be bacteriostatic in the older child, it must be bactericidal in the case of the young infant. The prognosis for severe staphylococcal disease in all age groups is so grave that intensive treatment with a bactericidal antibiotic, alone or in combination with a bacteriostatic agent, is indicated. Since the staphylococcus is able to remain viable within abscesses, adequate incision and drainage are essential; in some cases, direct instillation of a bactericidal antibiotic is advisable.

In general, the authors found that management of staphylococcal infections in children and infants is influenced by the age and condition of the patient, the source of the infection (hospital-acquired disease was usually severe and difficult to manage), the initial site of infection and its duration before treatment, and the antibiotic sensitivity of the organisms involved. In the series of cases studied, the strains of staphylococci remained sensitive to kanamycin and bacitracin during the period of the study. Since these agents are potentially toxic and must be administered parenterally, it is unlikely that they will be used indiscriminately, and the emergence of resistant strains will probably occur slowly, if at all.

## The puddle sign—an aid in the diagnosis of minimal ascites

► AS LITTLE AS 120 ml. of free abdominal fluid may be detected by a modified percussive technic, according to a report by Major John D. Lawson and Captain Arthur S. Weissbein, Medical Corps, U. S. Army, published in *The New England Journal of Medicine* for March 26, 1959. The chief difference in the authors' method is that it permits the differential transmission of vibrations as influenced by interfaces between dissimilar transmitting mediums, whereas other technics, such as shifting dullness, depend on local sound absorption over the area percussed. An advantage of the method is that it readily differentiates shifting dullness due to fluid-filled loops of bowel from that due to collections of free intra-abdominal fluid.

Although the collection of fluid within the abdomen was described by Celsus more than 900 years ago, the recorded physical signs of relatively small amounts of free fluid in the abdomen have never been very satisfactory. The authors consider the puddle sign a very reliable diagnostic aid, which is not influenced by marked obesity or the presence of considerable fluid in the lumen of the bowel.

## Spasm of round ligaments in pregnancy

► PAIN IN THE region of the round ligaments during the antepartum period may easily be confused with serious pathologic conditions, according to a report by Oscar Glassman, M.D., in the *New York State Journal of Medicine,* April 15, 1959. Unlike the broad and sacrouterine ligaments, the round ligaments have muscle tissue which enlarges during pregnancy to five or six times its normal size. The ligaments serve as "guy ropes," supporting and lifting the uterus and preventing torsion. It is known that these ligaments contract during labor, and it is assumed that such rhythmic contractions also occur during pregnancy. At times these contractions become spastic and painful, possibly as a result of increased tension as the uterus enlarges, or of hypoxia resulting from insufficient blood supply to the hypertrophic muscles. The pain has been mistaken for that of appendicitis, threatened abortion, premature labor, renal colic, twisted ovarian cyst, or other conditions. Thorough diagnostic studies should be made before any surgical procedure is decided upon. Often the pain arising from the round ligaments can be relieved simply by rest and reassurance. A maternity support after the third or fourth month is of value. Local heat and a mild sedative or antispasmodic may be prescribed.

In the author's series of 100 consecutive cases, pain or spasm in the region of one or both round ligaments was present in 30 patients. The age of the patient and the trimester of pregnancy were not significant, but it was found that the pain was more frequent during the first and second pregnancies than later.

## Human brain changes in cardiac arrest

► TWO CASES OF acute cardiac arrest in humans in which there was microscopic evidence of irreversible changes in the brain are described by Martin M. Mandel, M.D., and Richard G. Berry, M.D., in the June 1959 issue of *Surgery, Gynecology and Obstetrics.* In the first case, in a 35-year-old Negro woman, cardiac arrest was of 4 minutes' duration with a survival period of 27 hours; in the second, that of a 50-year-old white woman, the arrest was of 8 minutes' duration with survival of 3 days. The vulnerability of the cerebral cortex to the acute anoxia is shown by the changes in the occipital and frontal cortex. In these areas, a laminar loss of cells was found involving particularly laminae III and V, with the occipital cortex showing greater involvement in both cases. The calcarine area in case 2 contained no normal appearing neurons and had dilated and proliferated blood vessels with an increase in astrocytes and microglial cells in the cortex. The cerebellum was involved in both cases, showing a loss of Purkinje cells, as well as varying degrees of degeneration. Eosinophilic changes of the nucleus and cytoplasm were indicative of early anoxic changes. There was rarefaction necrosis of Bergmann's layer as well as an increase in glial elements. The molecular layer was prominent with microglia and astrocytes in the second case. The dentate nucleus was involved in both cases, with loss of neurons and pallor of those remaining. The hippocampus was severely involved in case 2, with a marked loss of pyramidal cells in Sommer's sector. The basal ganglia in both cases and the pons in case 2 revealed a diffuse loss of neurons throughout, with dilated, congested vessels. No areas of actual softening were noted in either case, as the patients did not survive long enough for these changes to develop. The cortex of the brain and the cerebellum appeared to be most sensitive to the oxygen deficiency. As the period of anoxia is prolonged, the changes are more diffuse in the brain and there is less selectivity. When cardiac arrest occurs during an operative procedure, speed is essential in restoring circulation by cardiac massage. The crucial period for complete recovery is 3 minutes from time of cardiac standstill to the moment of cardiac massage. With longer periods, selective involvement of the frontal lobe, occipital lobe, cerebellum, and hippocampus may occur.

# BOOK REVIEWS

*Books for review which were received during the period from June 5 to July 5 are listed on pages A-163 and A-164. Reviews of these books will be published as space permits.*

▶ SOCIAL PSYCHIATRY IN ACTION. A Therapeutic Community. By Harry A. Wilmer, M.D., Ph.D., Captain, Medical Corps, United States Naval Reserve, Naval Medical Research Institute, National Naval Medical Center, Bethesda, Maryland; Assistant Clinical Professor of Psychiatry, Stanford University (on military leave). Cloth. Pp. 373, with illustrations. Price $8.75. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1958.

The keynote to this thought-provoking book is in the Foreword, written by Dr. Francis J. Braceland, 1956-1957 President of the American Psycriatric Association. In it he states:

Psychiatry, the medical discipline entrusted with the care of the mentally and emotionally ill, has made remarkable advances within the past decade and has emancipated itself from confinement behind grim and forbidding hospital wall but, sadly, the mental hospital itself has shared in neither the progress nor the emancipation. For the most part it stands isolated, remote and alone, testimony to the mores of ages past and by fiat of legislators dedicated to the idea that mental patients must be treated and cared for as cheaply as possible. . . . There is much food for thought in this volume. Its implications extend far beyond those of psychiatric treatment alone. As the author points out, people invariably play the role which is expected of them. The role of the patient in the mental hospital usually has been to be sick. . . . In Dr. Wilmer's therapeutic community the role assigned the patient is that of a responsible member of society.

According to the author:

A therapeutic community is one which has the declared purpose of being therapeutic for its members individually and collectively. This simple statement takes on significance once it is granted that the membership of the community includes not only patients, but staff, with rights co-equal with patients to receive benefit from the community and to join with them in owning feelings and needs. . . . The ultimate objective of the therapeutic community is self-control, rather than imposed control, and the technique of social readjustment and acculturation.

The author outlines in clear detail the operation of the therapeutic community. Although his approach was primarily by the group method, he allowed for individual interviews on request. His attitude toward these individual interviews: "On my part I regarded the fulfillment of the requests as a contractual obligation that could not be scamped."

He discusses freely such matters as the use of drugs, problems of behavior such as aggressiveness and silence, and the themes of suicide, laughter, and tears. He leaves little to chance interpretation and details the roles played by the attendants, leaders, nurses, and all other participants.

The work is a rarity in many respects, but an outstanding feature which will be detected by the reader is the sincerity of its author. This has prompted Dr. Braceland to comment, in his Foreword, "The question will naturally arise: How much of the success of this venture is due to the system and how much is due to Doctor Wilmer?"

THOMAS J. MEYERS, PH.D., D.O.

▶ THE ANATOMY OF THE NERVOUS SYSTEM. Its Development and Function. By Stephen Walter Ranson, M.D., Ph.D., Late Professor of Neurology and Director of Neurological Institute, Northwestern University Medical School, Chicago. Revised by Sam Lillard Clark, M.D., Ph.D., Professor and Chairman of the Department of Anatomy, The Vanderbilt University School of Medicine, Nashville. Ed. 10. Cloth. Pp. 622, with illustrations. Price $9.50. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1959.

The tenth edition of this indispensable text continues to follow the principle that knowledge of the form and function of the nervous system is basic to the interpretation of man's behavior. This attitude toward correlation and application of principles is perhaps the thing that chiefly distinguishes this work from the many that seem to represent "discipline in a vacuum." Additions and changes in the new edition have been made largely on the basis of practical experience in the classroom; the criterion for alterations has been whether they will aid the student in understanding not only how the nervous system is constituted but also how it works. In general, the organization of the text conforms to that of previous editions; typographically, the new edition is much more pleasing. The terminology has been brought into line with that adopted by the International Anatomical Nomenclature Committee in 1955; for neuroanatomic terms not included in that list, accepted practice has been the guide. Terms for parts of the cerebellum have been varied from the IANC recommendations and in some instances in order to include recent studies from a comparative and embryologic point of view.

▶ MODERN TRENDS IN DISEASES OF THE VERTEBRAL COLUMN. Edited by Reginald Nassim, B.M., F.R.C.P., Physician to St. George's Hospital; Physician to the Royal National Orthopaedic Hospital, London; and H. Jackson Burrows, M.D., F.R.C.S., F.R.A.C.S.; Orthopaedic Surgeon to St. Bartholomew's Hospital, and to the Royal National Orthopaedic Hospital; Dean, Institute of Orthopaedics, British Postgraduate Medical Federation (University of London); Consulting Orthopaedic Surgeon to the Royal Navy. Cloth. Pp. 303, with illustrations. Price $15.00. Paul B. Hoeber (Medical Book Department of Harper & Brothers), 49 East 33rd Street, New York 16, 1959.

The principal value of this work is that it brings together a body of basic information that previously could be found only as dispersed fragments. The "modern trend" chiefly highlighted is the growing recognition of the vertebral column as a crucial point of

reference in many diseases, whether neoplastic, endocrinologic, or inflammatory. This anatomic approach is important for physicians in general, whose training in basic science lies more or less in the past.

The contributors to the volume are authorities in widely different fields; orthopedics, however, has the largest representation. Every section is well and interestingly written. Especially noteworthy is the clarity of the expository material, as well as the comprehensive lists of references that accompany the chapters. The discussion ranges from developmental anatomy and congenital anomalies to the latest information about the "formidable procedure" of spinal biopsy. The chapters on low back pain and on psychosomatic backache seem eminently sensible and should prove especially helpful to the perplexed physician. Technical considerations in some of the more serious pathologic conditions in the spine are carefully presented, and adequately illustrated with drawings and halftones of excellent quality.

The book, all in all, is a useful addition to Hoeber's Modern Trends Series. Its price ($15.00) may seem prohibitive to some physicians, in view of its size and format; however, one must assume that in this aspect too the book accurately reflects a modern trend.

▶ HEADACHE. Diagnosis and Treatment. Edited by Arnold P. Friedman, M.D., Associate Clinical Professor of Neurology, Columbia University; Associate Attending Physician, Neurological Institute, Presbyterian Hospital; Physician in Charge of Headache Unit, Montefiore Hospital, New York; and H. Houston Merritt, M.D., Professor of Neurology, Columbia University; Director of the Service of Neurology, Neurological Institute, Presbyterian Hospital; Acting Vice President in Charge of Medical Affairs and Acting Dean of the Faculty of Medicine, Columbia University; Consultant Neurologist, Montefiore Hospital, New York. Cloth. Pp. 401, with illustrations. Price $8.00. F. A. Davis Company, Medical Publishers, 1914 Cherry Street, Philadelphia 3, 1959.

That ubiquitous symptom, headache, is the chief affliction of probably more than half the patients who consult physicians. This book has the special purpose of presenting basic information necessary for the diagnosis and treatment of headache, as well as directing the attention of the physician to conditions that may necessitate a consultation of specialists. The twelve authors write from their own experience in various specialties. They explain basic mechanisms and diagnostic principles as well as specific disorders with which headache is associated. The section on pharmacology gives details on drugs of proved value, so that the reader may understand their use in the treatment and prevention of headache. The various authors have written freely and without attempting to avoid controversial subjects. The result is an interesting and highly informative book—a surprisingly well-rounded presentation in view of the vastness and complexity of the subject matter. One should add a note of appreciation for the pleasing format, a graceful blend of classic and modern concepts.

▶ HEY GROVES' SYNOPSIS OF SURGERY. Edited by Sir Cecil Wakeley, BT., K.B.E., C.B., LL.D., M.Ch., D.Sc., F.R.C.S., F.R.S.E., F.A.C.S., F.R.A.C.S.; Past President of the Royal College of Surgeons of England; Fellow of King's College, London; Consulting Surgeon to King's College Hospital and Belgrave Hospital for Children; Senior Surgeon, Royal Masonic Hospital; Consulting Surgeon to the Royal Navy; Examiner in Surgery to the University of Liverpool; Formerly Examiner in Surgery to the Universities of Bristol, Cambridge, Durham, Glasgow, London, and Sheffield; and to the National Universities of Ireland and Wales. Ed. 15. Cloth. Pp. 650, with illustrations. Price $8.50. The Williams and Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1958.

Once again, a new edition of this small but mighty volume, on the golden anniversary of its first publication. The preface to that first edition, fifty years ago, carries a familiar ring even now: "In recent years the tendency of all surgical literature to grow in bulk and diversity has of necessity compelled authors to enlarge their text-books more and more. . . . so that a student often despairs of being able to revise his knowledge."

Changes that are specifically recognized in this new edition include advances in vascular surgery and arterial grafting. Alterations in treatment that have been prompted by new antibiotics are also presented. The format remains practical and efficient, rather than beautiful; the content again holds out to the student cogent and at times pungent advice. Practically anything a surgeon would need to know in a hurry is here readily available.

In his preface Dr. Wakeley introduces as his collaborator L. T. Cotton, surgeon at King's College Hospital, who is destined to be responsible for future editions of the *Synopsis*.

▶ BREAST CANCER. Factors Modifying Prognosis. By A. J. Delario, M.D., member of the International College of Radiology, the American College of Radiology, the American Board of Radiology, the Radiological Society of North America, the Radiological Society of New Jersey, and the Scientific Advisory Council of the New York Cancer Research Institute, New York City; Consultant Radiologist, St. Joseph Hospital, Paterson, New Jersey. Cloth. Pp. 208, with illustrations. Price $7.50. The Macmillan Company, 60 Fifth Avenue, New York 11, 1959.

The more we learn about causes and cures of cancer, the more involved the situation becomes. Theories and hypotheses far outrun our present capacity to adduce statistical evidence, and physicians must often be at a loss to know where to turn for guidance. This book by Dr. Delario, embodying 137 tables with brief explanatory notes, exemplifies the sort of study that must be made time and time again before order can reign in the chaotic field of cancer treatment. The study covers only one aspect of one small part of the field, but at least it clarifies this particular situation and suggests further possibilities. The report covers 465 cases of breast cancer, comparing the results of surgical and radiation treatment, and indicating the results of radical and conservative surgery, with and without preoperative or postoperative radiation treatment. Hormone therapy is also represented. The cases are further analyzed with regard to the individual factors that influenced the outcome and therefore might be considered to modify the prognosis in cancer of the breast. The author stresses the importance of follow-up studies, stating that 100 per cent follow-up probably can be achieved more often than is commonly realized. In the series reported, the outcome of every case was known. A macabre note—pointing up the human problems underlying cold data—is the comment that in some instances "local morticians gave the desired information."

Physicians will be interested in seeing how the results were obtained and determining for themselves whether there are clues or trends in the compiled statistics which the author may have overlooked.

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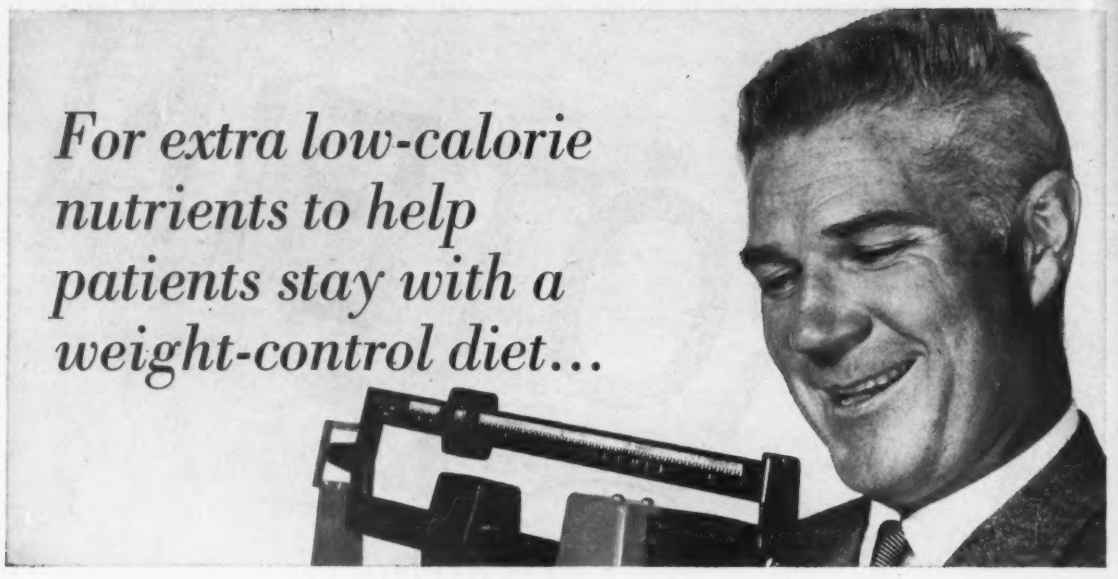

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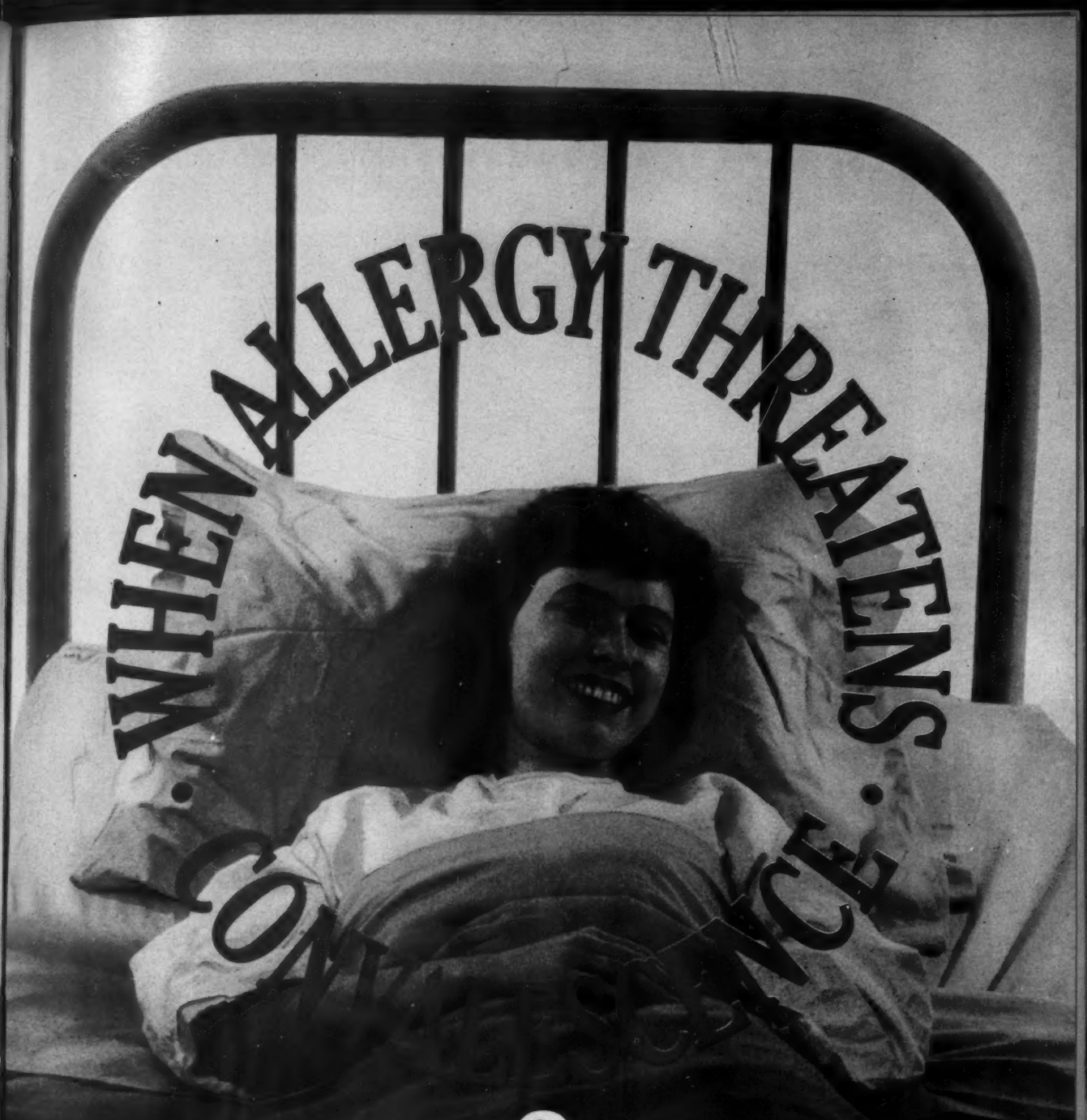


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1. Moyer, J. H.: M. Clin. North America, Mar., 1957, p. 405.
2. Seidner, H. M.: Illinois M. J. 109:20, 1956.
3. Charles, C. M.: Geriatrics 11:110, 1956.
4. Weil, L. L.: J. Florida Acad. Gen. Practice 4:9, No. 3, 1954.
5. Kinney, J. J.: J. M. Soc. New Jersey 53:123, 1956.
6. Semmens, J. P.: Obst. & Gynec. 9:586, 1957.
7. Connor, P. K., Jr., and Moyer, J. H.: GP 14:124, No. 5, 1956.
8. Deeschner, C. M., et al.: South. M. J. 49:1465, 1956.
9. Mulherin, C. McL., and Bryans, C. I., Jr.: J. M. A. Georgia 45:46, 1956.
10. Report of study by Army, Navy, Air Force Motion Sickness Team: J.A.M.A. 160:758, 1956.


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*1. Borrus, J. C.: J.A.M.A. 157:15[illegible]ril 30, [illegible]. 2. Sell[illegible] S.: J.A.M.A. 157:1594, April 30, 1955. 3. Lemere, F.: [illegible]rthwest Med. [illegible]098, Oct. [illegible]5. 4. Ben[illegible] B. and [illegible]ocutti, C.: Lav. neuropsichiat. 18:693, [illegible]5. Selli[illegible]S.: J. Clin[illegible] Exper. Ps[illegible]th. 17:7[illegible] March 1956. 6. Berglund, M., Blumenthal, B[illegible]Flordh, P.: [illegible]nska läk. 5[illegible]:3362, Dec. [illegible] 1956. 7[illegible]el, H. A., Wood, J. A. and Dixon, H. H.: [illegible]ew York Aca[illegible]c. 67:780, May 9, 1957. [illegible] Hollister[illegible]E., Elkins, H., Hiler, E. G. and St. Pierr[illegible] Ann. New Yo[illegible] Acad. Sc. 67:789, May 9, [illegible]957. 9. G[illegible]: Rass. med. 34:233, July-Au[illegible]957. 10[illegible]i, R. et al[illegible] J. Pediat. Praxis 20:27, [illegible]g. 1957 [illegible]Niklund, P[illegible]: Anaesthesist[illegible]07, Aug[illegible]7. 12. Tucker, W. I.: Sout[illegible]M. J. 50:1111, Sept. 195[illegible]3. Rolándi[illegible]: Attual. ostet[illegible]. 3(6)[illegible]9, Nov.-Dec. 1957. 14. [illegible]ecker, W.: Klin. Mon[illegible]1. Augeni[illegible]2):224, 1958. [illegible]nebianc[illegible]G. and Ceroni, T.: Oto-[illegible]ring. ital. 26(2):143, 1958. 16. [illegible]o, G.: Mine[illegible]49:1914. 1958. 17. [illegible]tuso, R. and [illegible]tti, F.: A[illegible]neurol. [illegible]3(1):36, [illegible] 1958. 18. [illegible]Gazz. med. ital. [illegible]:49, Feb. 195[illegible]Dastur, R.[illegible]: J. Indian M. Prof[illegible]13, Feb. 1958. [illegible]st, W.: Therap. [illegible]97:66, Fe[illegible]21. B[illegible]P.: Lyon méd. 19[illegible] March 2, 1958. [illegible]niglia, G.: Min[illegible]10:218, M[illegible]15, 1958. [illegible]dlander, H. S.: [illegible] Cardiol. 1:395[illegible]1958. 24. McCle[illegible]: Arch. Pe[illegible]. 75:101, [illegible] 25. Sprauer, V. J.: Internat. Rec. Med. & GP Clinics 171:[illegible] 1958. 26. [illegible]obinson, R.[illegible] Robinson, H. M., Jr.: South. M. J. 51:[illegible]09, April 1958. 27[illegible], S. and Pe[illegible]er, L.: N[illegible]ed. 58:1285, April 15, 1958. 28. Bouquerel, J., Naviau and [illegible]ne: Ann. méd. [illegible]sychol. 11[illegible]ne 1958. 29. Reboul, E., Reboul, M. and Dorgeuille, C.: Maroc [illegible]37:784, July 1958. 30. B[illegible]. Lyon méd. 200:885, Nov. 1958. 31. Lamphier, T. A.: Maryland M[illegible]7:627, Nov. 1958. 32. Leuke[illegible]Med. Klin. 53:2113, Dec. 1958.

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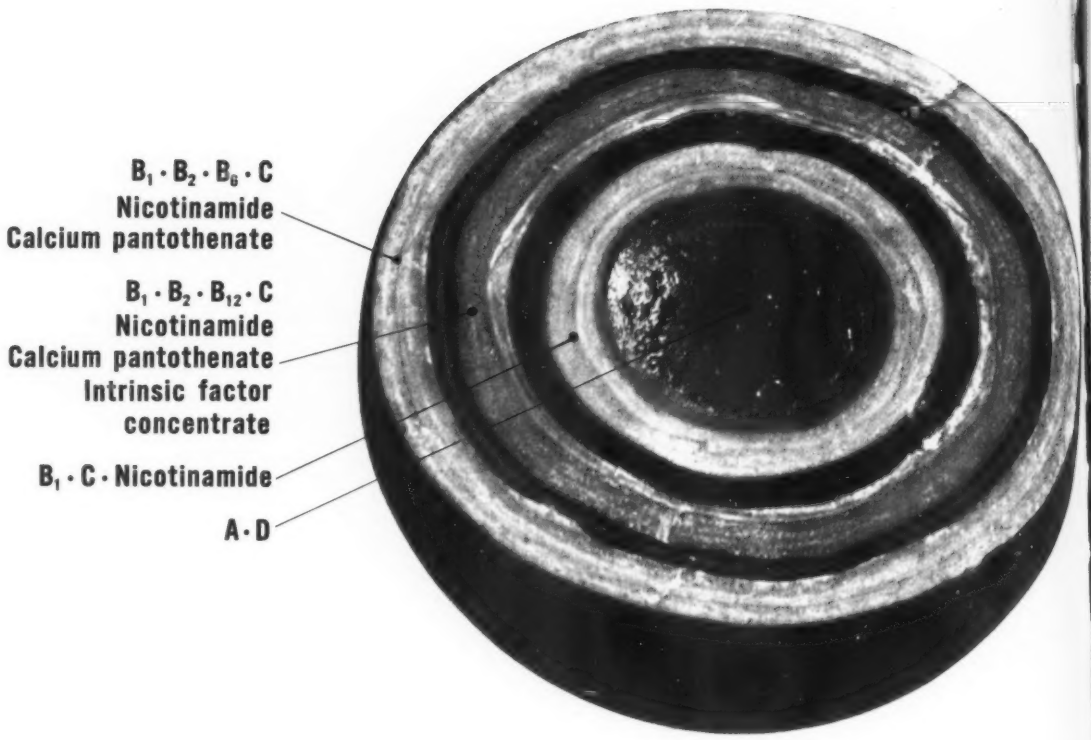


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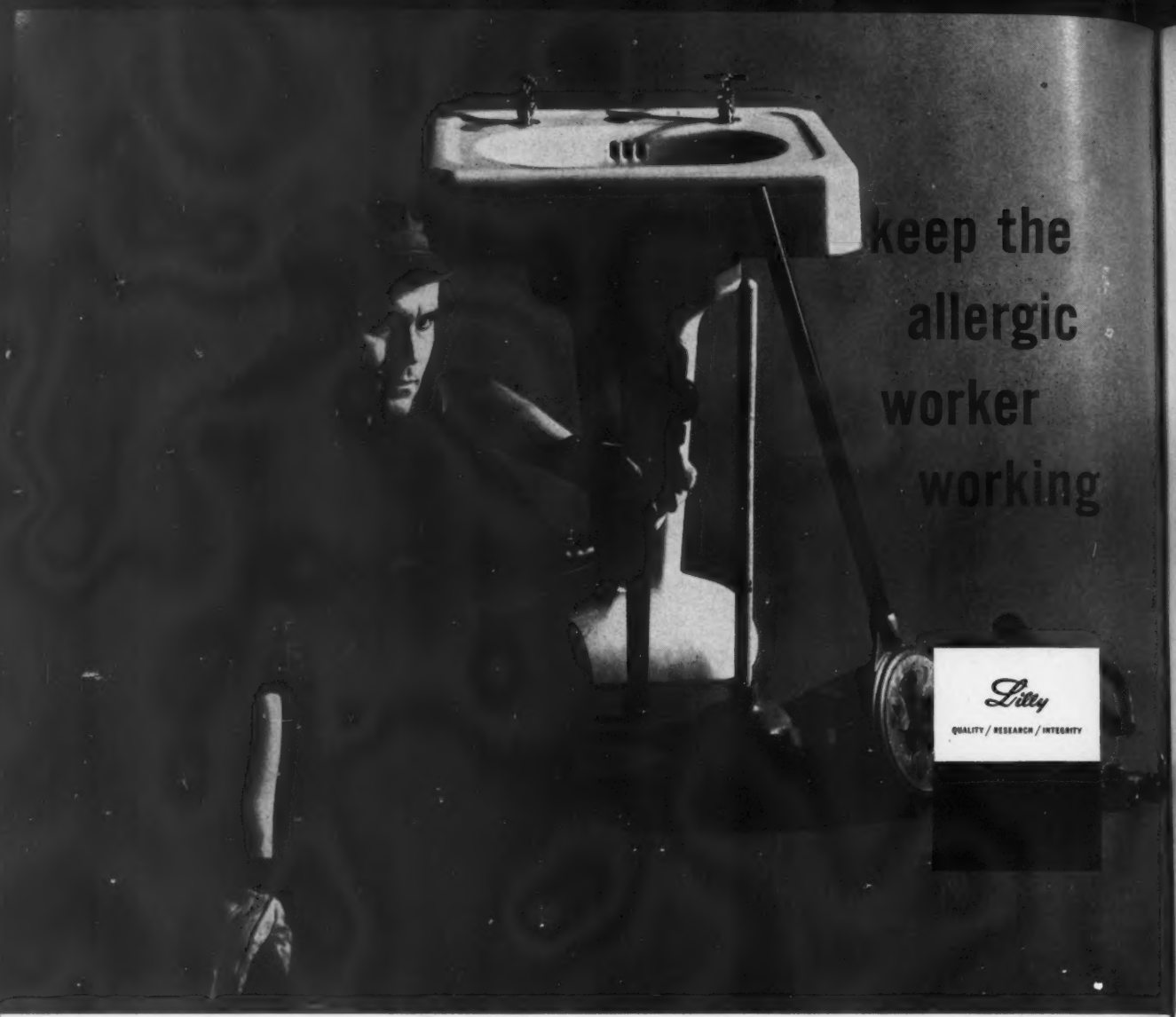


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# Conventions and meetings

## Announcements

*American Osteopathic Association, Sixty-Fourth Annual Convention, Kansas City, Mo., July 11-15. Program Chairman, Raymond L. Ruberg, 4614 Wayne Ave., Philadelphia 44.*

American College of General Practitioners in Osteopathic Medicine and Surgery, midyear clinical conference, Hotel Fort Des Moines, Des Moines, Iowa, November 8-10. Program Chairman, Jean F. LeRoque, 3305 S. W. Ninth St., Des Moines 15. Secretary, A. J. Schramm, 5880 San Vicente Blvd., Los Angeles 19.

American College of Osteopathic Internists, annual meeting, Hotel Statler, Dallas, Texas, September 24-26. Program Chairmen, J. F. DePetris, 5101 Ross Ave., Dallas 6, and Joseph T. Rogers, 1459 Fort St., Wyandotte, Mich. Secretary, Glennard E. Lahrson, 460 Staten Ave., Oakland 10, Calif.

American College of Osteopathic Obstetricians and Gynecologists, annual meeting, Hilton Hotel, San Antonio, Texas, February 22-25. Secretary, Arthur A. Speir, Box 66, Merrill, Mich.

American College of Osteopathic Pediatricians, annual meeting, Hilton Hotel, San Antonio, Texas, February 22-25. Secretary, Myron D. Jones, Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6, Mo.

American College of Osteopathic Surgeons, annual clinical assembly, Hotel Statler, Los Angeles, October 25-29. Program Chairman, Don E. Ranney, 793 N. Renaud, Grosse Pointe Woods 36, Mich. Executive Secretary, Mrs. E. F. Martin, Box 488, Coral Gables 34, Fla.

American Osteopathic Academy of Orthopedics, annual clinical assembly, Hotel Statler, Los Angeles, October 25-29. Secretary, J. Paul Leonard, 2673 W. Grand Blvd., Detroit 8.

American Osteopathic College of Anesthesiologists, annual clinical assembly, Hotel Statler, Los Angeles, October 25-29. Program Chairmen, Glenn F. Gordon, 1630 Del Valle Ave., Glendale 8, Calif., and John C. Bell, 2434 Glendower Ave., Los Angeles 27. Secretary, Crawford M. Esterline, Box 155, Kirksville, Mo.

American Osteopathic College of Proctology, annual clinical assembly and refresher course, Mayo Hotel, Tulsa, March 28-April 1. Secretary, Eugene W. Egle, Lackland Clinic, 2335 Brown Rd., St. Louis.

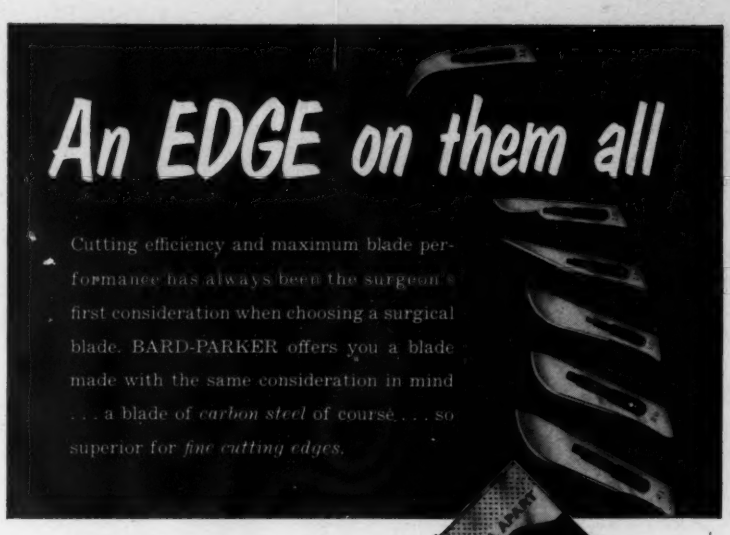
American Osteopathic College of Radiology, annual clinical assembly, Hotel Statler, Los Angeles, October 25-29. Secretary, F. A. Turfler, Jr., South Bend Osteopathic Hospital, 2515 E. Jefferson Blvd., South Bend 15, Ind.

American Osteopathic Hospital Association, annual clinical assembly, Hotel Statler, Los Angeles, October 25-29. Executive Secretary, Mr. Emil Herbert, 4000 Brady St., Davenport, Iowa.

British, annual meeting, Claridge's, London, September 17-19. Program Chairman, Murray R. Laing, 5 Eaton House, 39-40 Upper Grosvenor St., London, W 1. Secretary, Thurston True, Andrew Still House, 24-25 Dorset Sq., London, N. W. 1.

Canada, annual meeting, Alpine Inn, St. Marguerite Station, Quebec, October 8-10. Program Chairman, Rosamond Pocock, 404 C.P.R. Bldg., Toronto 1. Secretary, Miss Joyce S. Currie, 609 Medical Arts Bldg., Montreal 25.

Central States Osteopathic Society of Proctology, annual meeting, Niel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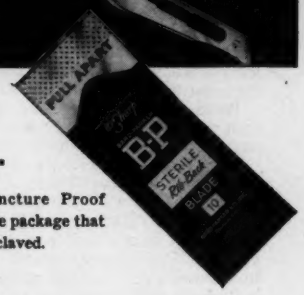

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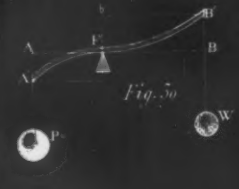


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House, Columbus, Ohio, September 18-20. Program Chairman, John V. Wilkes, 83 E. Avon Rd., Rochester, Mich. Secretary, Kenneth C. French, 33 S. Macomb St., Monroe, Mich.

Eastern States Osteopathic Society of Proctology, Hotel Bellevue-Stratford, Philadelphia, November 7-8. Program Chairman, Herbert J. Lipkin, 1841 N. 18th St., Philadelphia 21. Secretary, Leroy W. Lovelidge, Jr., 201 E. Orange St., Lancaster, Pa.

Florida, annual meeting, Diplomat Hotel, Hollywood Beach, September 28-30. Program Chairman, A. H. Westwood, 12 N.E. 12th Ave., Fort Lauderdale. Executive Secretary, Mr. Barton K. Johns, 5009 Central Ave., Tampa 3.

Indiana, annual meeting, Marott Hotel, Indianapolis, May 14-17. Secretary, Arabelle B. Wolf, 4840 N. Michigan Rd., Indianapolis 8.

Kansas, annual meeting, Baker Hotel, Hutchinson, October 4-7. Program Chairman, Everett W. Pettit, 132 'E' Ave. S, Lyons. Executive Secretary, Mr. Lloyd L. Hall, 121 E. 8th St., Topeka.

Louisiana, annual meeting, New Orleans, October 22-24. Program Chairman, W. Luther Stewart, 525 Johnston St., Alexandria 3. Secretary, V. L. Wharton, 406-07 Weber Bldg., Lake Charles.

Maine, midyear meeting, Waterville, December 3-5. Executive Secretary, Mr. George R. Petty, Monmouth.

Maryland, annual meeting, Park Plaza Hotel, Baltimore, October 25. Program Co-chairmen, Grace R. McMains, 414-16 Professional Bldg., 330 N. Charles St., Baltimore 1, and Ernest R. MacDonald, 309 Meyerhoff Bldg., Charles and Saratoga Sts., Baltimore 1. Secretary, Dr. MacDonald.

Massachusetts, annual meeting, Somerset Hotel, Boston, January 16-17. Program Chairman, Stuart K. Partridge, 47 Washington St., Malden 48. Executive Secretary, Mrs. Gladys M. Stockdale, 524 California St., Newtonville 60.

Michigan, annual meeting, Civic Auditorium, Grand Rapids, October 5-7. Program Chairman, Neil R. Kitchen, 18820 Woodward Ave., Detroit 3. Executive Secretary, Mr. Floyde E. Brooker, 81 Glendale, Highland Park 3.

Minnesota, midyear meeting, Pine Edge Hotel, Little Falls, September 18-19. Annual meeting, Minneapolis, May 5-7. Secretary, E. R. Komarek, 301 Granite Exchange Bldg., St. Cloud.

Missouri, annual meeting, Sheraton-Jefferson Hotel, St. Louis, October 14-16. Program Chairman, Gilbert H. Kroeger, Reid Hospital and Clinic, 17th and Central Aves., Bethany. Executive Secretary, Mr. Paul D. Adams, 325 E. McCarty St., Jefferson City.

New Jersey, clinical conference, Stacy Trent Hotel, Trenton, September 20. Program Chairman, Joseph V. Huffnagle, 101 Bowood Dr., Haddonfield. Annual meeting, Traymore Hotel, Atlantic City, March 11-13. Program Chairman, Dr. Huffnagle. Executive Secretary, Mr. R. P. Chapman, 342 W. State St., Trenton 8.

New York, annual meeting, Park Sheraton Hotel, New York City, October 16-17. Program Chairman, Leonard V. Strong, Jr., 133 E. 58th St., New York 22. Secretary, C. Fred Peckham, 38 E. Bridge St., Oswego.

North Carolina, annual meeting, Battery Park Hotel, Asheville, October 22-24. Program Chairman, S. Dales Foster, 710 Public Service Bldg., Asheville. Secretary, Walter C. Eldrett, 310 S. Main St., Hendersonville.

Ohio, refresher course, Dayton-Biltmore Hotel, Dayton, October 24-25. Program Chairman, Roger E. Bennett, 1613 Gage Dr., Middletown. Executive Secretary, Mr. William S. Konold, 53 W. Third Ave., Columbus 1.

Oklahoma, annual meeting, Hotel Tulsa, Tulsa, November 4-6. Program Chairman, John W. Morrow, 1222 W. Main St., Woodward. Executive Secretary, Mr. Walter L. Gray, 210-12 Braniff Bldg., Oklahoma City.

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## DUAL RELEASE HYPNOTIC-TRANQUILIZER

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Hyptran's inner core of phenyltoloxamine, released later in the night, controls insomnia-causing anxieties, keeps them from "breaking through" and interrupting sleep. Patients awake calm and clear-headed, fully refreshed mentally and physically.

DOSAGE: 1-2 tablets before retiring. SUPPLIED: Bottles of 100 sugar-coated, pink tablets. **IMMEDIATE RELEASE:** Phenyltoloxamine Citrate 25 mg., Secobarbital 60 mg. (warning — may be habit forming); **DELAYED RELEASE:** Phenyltoloxamine Citrate 75 mg.

**References:** Batterman, R. C., et al.: New York J. Med. 58:3821, 1958. / Harrison, T. R.: Principles of Internal Medicine, 3rd ed. McGraw-Hill 1958, Pg. 1764. / DiMascio, A., et al.: Am. J. Psychiat., 115, 301-317, 1958. / Sainz, A.: Proc. of Mohawk Valley Psychiatric Assn., June 17, 1957. / Fleischmajer, R., et al.: Antib. Med. & Clin. Therap., 5, 120-124, 1958. / Hoekstra, J. B., et al.: J. Am. Pharm. A., 42, 587-593, 1953. / Cronk, G. H. and Naumann, D. E.: New York J. Med., 55, 1465-1467, 1955. Paper in preparation: data on 500 clinical cases available on request.

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*Lawson, G. W.: Diffuse Otitis Externa and Its Effective Treatment, Postgrad. Med. 22:501, Nov., 1957.
†Daly, J. F.: Personal Communication. Yesner, B.: Personal Communication. McStravog, L.: Personal Communication. Rigual, R.: Personal Communication.

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Ontario, annual meeting, Park Hotel, Niagara Falls, May 2-4. Program Chairman, M. Paul Christianson, 901-02 Pigott Bldg., Hamilton. Secretary, Eric B. Johnston, 2920 Bloor St., W. Toronto 18.

Osteopathic College of Ophthalmology and Otorhinolaryngology, annual meeting, Statler Hotel, Detroit, September 28-30. Executive Secretary, Arthur A. Martin, Kirksville Osteopathic Hospital, 800 W. Jefferson St., Kirksville, Mo.

Pennsylvania, annual meeting, Bellevue-Stratford Hotel, Philadelphia, November 19-21. Program Chairman, Charles Lichtenwalner, Jr., 379 Chestnut St., Pottstown. Executive Secretary, Mr. Thomas M. Fogarty, 1941 Market St., Harrisburg.

Vermont, annual meeting, Windsor House, Windsor, September 25-27. Program Chairman, Charles D. Beale, Mead Bldg., Rutland. Clerk, Marian Norton Rice, 8 Court St., Windsor.

Western States Osteopathic Society of Proctology, annual meeting, Riviera Hotel, Las Vegas, Nev., October 5-7. Program Chairman, John R. Shafer, 2433 W. 44th Ave., Denver 11. Secretary, Earle F. Waters, 925 E. South Temple St., Salt Lake City 2, Utah.

# State and national boards

### ARIZONA

Those interested in professional examinations should contact Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 E. McDowell Rd., Phoenix 22.

Basic science examinations September 15 at the University of Arizona, Tucson. Applications must be filed 2 weeks prior to examinations. Address Mr. Herman E. Bateman, secretary, Basic Science Board, University of Arizona, Tucson.

### CALIFORNIA

Glennard E. Lahrson, D.O., Oakland, and H. Hill McGillis, D.O., Sonora, have been appointed members of the Board of Osteopathic Examiners.

### COLORADO

Basic science examinations in September at second floor lecture room, Y.M.C.A. Building, E. 16th Ave. and Lincoln St., Denver. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 18.

### CONNECTICUT

Basic science examinations October 10. Address Miss M. G. Reynolds, executive assistant, Board of Healing Arts, 110 Whitney Ave., New Haven 10.

### DISTRICT OF COLUMBIA

Professional examinations November 9-10. Address Daniel Leo Finucane, M.D., secretary, Commission on Licensure, 1740 Massachusetts Ave., N.W., Washington 6, D.C.

Basic science examinations in October. Address Dr. Finucane.

### IDAHO

Examinations November 12 at Boise. Address Mrs. Nan K. Wood, director, Occupational License Bureau, Department of Law Enforcement, State House, Boise.

### ILLINOIS

Examinations in October at Chicago. Address Mr. Frederic B. Selcke, Superintendent of Registration, Department of Registration and Education, State House, Springfield.

### IOWA

Basic science examinations October 13 at the Capitol Building, Des Moines. Address Elmer W. Hertel, Ph.D., secretary, Board of Basic Science Examiners, Wartburg College, Waverly.

### KANSAS

Stanley E. Davis, D.O., Columbus, has been reappointed a member of the Board of Healing Arts.

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References:

1. Flesch, Peter, M.D., Ph.D., University of Pennsylvania, School of Medicine, T. Gds. Assn., No. 29, June '58, "New Approaches to the Study of Human Horny Layers".
2. Gould, Bernard S., Division of Biochemistry, Dept. of Biology, Massachusetts Institute of Technology, "Biosynthesis of Collagen", The Journal of Biological Chemistry, 232:2, page 637, June, 1958.
3. Schreiner, A. W., Slinger, W., Hawkins, V. R. and Vilter, R. W.; J. Lab. & Clin. Med. 40:121-130, July, 1952.
4. Combes, F. C., and Zuckerman, R.; J. Invest. Dermatology 16:379 April, 1958.


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### MAINE

Examinations November 10-11 at Augusta. Address George F. Noel, D.O., secretary, Board of Osteopathic Examination and Registration, 20 Monument Sq., Dover-Foxcroft.

### MARYLAND

Examinations in October at Baltimore. Address Christopher F. Ginn, D.O., secretary, Board of Osteopathic Examiners, 19 W. Mulberry St., Baltimore 1.

### MICHIGAN

Basic science examinations in October. Address Mrs. Anne Baker, secretary, Board of Examiners in the Basic Sciences, 116 Mason Bldg., Lansing.

### MINNESOTA

Basic science examinations October 6 at University of Minnesota, Minneapolis. Address Raymond N. Bieter, M.D., secretary, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

### MONTANA

Examinations in September. Address Clem L. Shafer, D.O., president, Board of Osteopathic Examiners, 700 11th Ave., Helena.

### NEBRASKA

Basic science examinations October 6-7. Address Mr. R. K. Kirkman, Director, Bureau of Examining Boards, Department of Health, State Capitol Bldg., Lincoln 9.

### NEVADA

Basic science examinations October 6. Address Donald G. Cooney, Ph.D., secretary, Board of Examiners in the Basic Sciences, Box 9005, University Station, Reno.

### NEW HAMPSHIRE

Examinations September 9-12 at Concord. Address Edward W. Colby, M.D., secretary, Board of Registration in Medicine, State House, Concord.

### NEW JERSEY

Examinations October 20-23. Address Royal A. Schaaf, M.D., secretary, Board of Medical Examiners, Room 1407, 28 W. State St., Trenton 8.

### NEW MEXICO

Basic science examinations October 18. Address Mrs. Marguerite Cantrell, secretary, Board of Examiners in the Basic Sciences, Box 1522, Santa Fe.

### RHODE ISLAND

Professional examinations October 1-2 at Providence. Address Mr. Thomas B. Casey, Administrator of Professional Regulation, 366 State Office Bldg., Providence.

Basic science examinations November 11 at Room 366, State Office Bldg., Providence. Applications must be filed 2 weeks prior to examinations. Address Mr. Casey.

### TENNESSEE

Professional examinations in February and August at Nashville. Address M. E. Coy, D.O., secretary, Board of Examination and Registration for Osteopathic Physicians, 1226 Highland, Jackson.

Basic science examinations given every 3 months. Address O. W. Hyman, M.D., secretary, Board of Basic Science Examiners, 874 Union Ave., Memphis 3.

### TEXAS

R. H. Peterson, D.O., Wichita Falls, has been elected vice president of the Board of Medical Examiners.

Examinations December 3-5 at the Hilton Hotel, Fort Worth. Applications must be filed 10 days prior to examinations. Applications for reciprocity must be on file 30 days ahead. Address M. H. Crabb, M.D., secretary, Board of Medical Examiners, 1714 Medical Arts Bldg., Fort Worth 2.

### UTAH

Examinations in September. Address Mr. Frank E. Lees, assistant director, Department of Registration, 314 State Capitol Bldg., Salt Lake City 1.

### WISCONSIN

Basic science examinations September 11 at University of Wisconsin Chemistry Building, Madison. Applications must be filed by September 3. Address Mr. W. H. Barber, secretary, Board of Examiners in

**SQUIBB PRODUCT BRIEF**

**BASIC THERAPY FOR A BASIC PROBLEM — TO REACH THE WHOLE HYPERTENSIVE POPULATION**

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**Squibb Standardized Whole Root Rauwolfia Serpentina**

# RAUTRAX

**Raudixin and Squibb Flumethiazide with Potassium Chloride**

**WHAT IS IT?** Rautrax is Squibb Standardized Whole Root Rauwolfia Serpentina (Raudixin) enhanced by Squibb Flumethiazide plus Potassium Chloride. Rautrax is specifically designed to provide both antihypertensive and diuretic effects. Thus, the combination extends the usefulness of Raudixin to afford effective management of hypertension when: prompter reduction of blood pressure is desirable; greater reduction of blood pressure is desirable; signs of edema or congestive heart failure are present; there is insufficient response to a single hypotensive agent; and partial or complete replacement of potentially more toxic hypotensive agents is desirable.

Raudixin is Squibb Standardized Whole Root Rauwolfia Serpentina. A decade of modern clinical experience has firmly established Raudixin as the cornerstone of successful medicinal treatment of essential hypertension. Its efficacy and safety have been confirmed by millions of prescriptions for millions of patients.

Flumethiazide was synthesized and developed in the Laboratories of the Squibb Institute for Medical Research. Its chemical designation is 6-trifluoromethyl-7-sulfamyl-1,2,4-benzothiadiazine-1,1-dioxide. Pharmacologic and clinical studies have shown the unusual effectiveness of flumethiazide in establishing and maintaining diuresis in edematous patients.[1-2,5] Flumethiazide is comparable in promoting water and sodium and chloride loss (saluretic action) to its chloro homologue, chlorothiazide.[1-2] At dosage levels producing comparable diuresis, however, flumethiazide has been reported to cause less potassium loss than chlorothiazide[2-5] or hydrochlorothiazide.[4*] Moreover, the inclusion of supplemental potassium chloride in Rautrax provides added protection against potassium and chloride loss in the long-term management of hypertension.

**HOW DOES IT ACT?** RAUDIXIN supplies the *total* activity of the whole Rauwolfia serpentina root. Thus, the therapeutic effect of Raudixin is greater than that produced by any single alkaloid from the whole root.[6]

Raudixin has three basic pharmacologic effects, i. e., hypotension, tranquilization and bradycardia. In hypertension Raudixin produces a gradual, sustained lowering of the blood pressure, but does not significantly affect the blood pressure in normotensive patients. The tranquilizing effect of the drug is particularly valuable in relieving such common hypertensive symptoms as anxiety, tension, headache, insomnia and palpitations; patients generally experience a sense of well-being without lethargy. The mild bradycardia lowers the work load of the heart, helping to increase cardiac efficiency.

RAUTRAX combines the actions of Raudixin and Squibb Flumethiazide to provide faster and further reduction of elevated blood pressure. Flumethiazide enhances the antihypertensive properties of Raudixin,[2-3,7] frequently making possible lower doses of the latter drug. At the same time Raudixin permits lower doses of flumethiazide. Rautrax also lessens the need for rigid salt restriction, allowing a more palatable diet.

Whether the antihypertensive effect of flumethiazide depends solely on its diuretic action is not yet known. Nor has the exact mechanism of this type of diuretic action been determined.

**WHEN IS IT INDICATED?** Both Raudixin and Rautrax may be used in *all degrees of hypertension.* Choice between the two depends on careful evaluation of each patient.

RAUDIXIN is the agent of choice unless there is a great urgency for a rapid hypotensive effect. Many clinicians prefer the gradual, gentle action of Raudixin since hypertensive patients, particularly the elderly, may not tolerate sudden changes in blood pressure well. Raudixin alone is frequently sufficient in mild to moderate hypertension. Even in severe cases, Raudixin alone "may be surprisingly efficacious."[8]

RAUTRAX is the antihypertensive agent of choice when: prompter reduction of blood pressure is desirable; greater reduction of blood pressure is desirable; signs of edema or congestive heart failure are present; there is insufficient response to a single hypotensive agent; and partial or complete replacement of potentially more toxic hypotensive agents is desirable.

Rautrax alone is sufficient for most hypertensive patients. When an additional antihypertensive effect is needed, however, ganglionic blocking agents, veratrum and/or hydralazine may be used to augment Rautrax therapy. Rautrax affords smoother control of blood pressure and permits considerably lower dosage (at least 50% lower) of these more toxic hypotensive agents. After an adequate response is obtained and maintenance dosages established, it may gradually be possible to eliminate the other hypotensive agents and maintain the patient on Rautrax or Raudixin alone.

**WHAT IS THE DOSAGE?** Since Raudixin and Rautrax may be used in all degrees of hypertension, mild, moderate or severe, the dosage of these agents should be carefully individualized for each patient. Patients on Raudixin or Rautrax therapy should be observed at regular intervals to detect any need for changing dosage or the presence of any unwanted effects. As with any medication, patients should be maintained on the lowest dosage of either agent needed to achieve the desired effect.

*Fuchs and his associates[5] report that chronic administration of two grams of flumethiazide per day "maintained a group of cardiac patients free of congestive failure complaints. There was no significant influence on serum electrolytes or on the blood count." Bodi and others[3] indicate that "plasma electrolyte levels were not appreciably altered by single or repeated doses (of flumethiazide). This was also evidenced during prolonged use of the drug in ambulatory cardiac patients on a normal diet. The insignificant potassium loss observed is a welcome phenomenon following administration of this drug. Administration of potassium was not necessary in our patients." In a report on hydrochlorothiazide, Moyer *et al*[4] state that "by contrast to hydrochlorothiazide, the primary effect of flumethiazide is on natriuresis and not chloruresis. The latter compound (flumethiazide) also has less effect on potassium excretion than do chlorothiazide and hydrochlorothiazide."

# SQUIBB PRODUCT BRIEF CONTINUED

RAUTRAX

RAUDIXIN: The recommended initial dose is two 100 mg. tablets once daily. While the maximum tranquilizing effect of Raudixin usually appears in three to ten days, the maximum hypotensive effect may not be seen for one to three weeks. Then the dosage should be adjusted according to the patient's response. The maintenance dosage generally ranges from 50 to 300 mg. daily, in single or divided doses. Most patients can be maintained on single daily doses of 100 to 200 mg. Some patients who have responded satisfactorily during a five to six weeks' course of Rautrax may be transferred to Raudixin for maintenance therapy. For these patients, the suggested Raudixin dosage is 100 or 200 mg. as a single daily dose.

RAUTRAX: Initial daily dosage of Rautrax may range from 2 to 6 tablets in divided doses, morning and night. For most cases 2 to 4 tablets daily is sufficient, but a few may require up to 6 tablets. In edematous patients, the maximum diuretic effect is readily apparent within one or two days and subsides after four or five days of treatment as an edema-free state is reached and maintained. The maximum hypotensive effect, however, is usually not seen for several days, after which the dosage should be adjusted according to the patient's response. Daily maintenance dosage of Rautrax may range from 1 to 6 tablets in divided doses. Most patients can be maintained on 1 or 2 tablets daily.

**WHAT IS THE MARGIN OF SAFETY?**

RAUDIXIN provides these safety factors: 1. unlike reserpine, reactivation of peptic ulcer has not been reported; "may be used safely even in the presence of ulcer disease"[9] 2. less likely to produce depression 3. less likely to produce Parkinson-like symptoms 4. does not require serial blood counts during maintenance therapy 5. is not habit forming; tolerance to it has not been reported 6. convenient potencies protect physicians against inadvertent overdosage, a tendency which Wilkins[8] believes exists with 0.25 mg. reserpine tablets 7. meticulously standardized for consistent, predictable results.

RAUTRAX provides all the safety factors of Raudixin *plus those of Flumethiazide:* 1. complementary action[2,3,7] with Raudixin permits lower doses of each drug which minimizes possibility of unwanted effects; the usual maintenance dose of Rautrax is far below the upper safety limits of either or both drugs combined 2. less potassium loss than with chlorothiazide[3-5] or hydrochlorothiazide[4*] 3. no appreciable effects on serum electrolytes[1-3,5] 4. gout, purpura or allergic reactions not reported 5. patients allergic to chlorothiazide have not proved allergic to flumethiazide[10] 6. agranulocytosis not observed—*plus those of Potassium Chloride:* 1. protection against potassium and chloride loss lessens need for dietary supplementation and weekly electrocardiograms and serum potassium determinations.

**WHAT ARE THE SIDE EFFECTS?** RAUDIXIN is remarkably well tolerated over extended periods of therapy. In some patients, bizarre dreams, looseness of the bowels, nausea and vomiting, nasal stuffiness and drowsiness may occur. These symptoms are frequently alleviated as therapy progresses or with lower dosage. Reversible extrapyramidal symptoms may occur in a few patients on high dosage, but the likelihood of these Parkinson-like symptoms is considerably less than with the reserpine. Like reserpine, Raudixin may produce mental depression in patients on high dosage or prolonged therapy, although it is less likely than reserpine to have this effect in the recommended doses. Patients exhibiting signs of depression should be placed on lower dosage or taken off the drug. Water retention with edema in patients with hypertensive vascular disease may occur rarely, but the condition generally clears with cessation of therapy.

RAUTRAX diminishes the possibility of unwanted effects from Raudixin because the combination permits lower doses of both Raudixin and flumethiazide.

No serious side effects attributable to flumethiazide have been reported in clinical trials to date. A few cases of mild pruritus and minor gastrointestinal disturbances have occurred. As with any potent diuretic of this type, however, hypochloremic alkalosis with or without hypokalemia may occur in some patients despite the supplemental potassium chloride provided by Rautrax. Generally, a high potassium intake as supplied by orange or tomato juice and a balanced diet of meat and vegetables helps preclude these unwanted effects. Patients with cirrhosis are particularly prone to hypokalemia. Therefore, cirrhotic patients or those on low-salt diets should be observed closely and regularly to detect early signs of fluid and/or electrolyte disturbance so that appropriate corrective measures can be taken promptly. Care should be exercised in treating patients with severely damaged kidneys and low urine output. *Note:* While there are no absolute contraindications to the use of Rautrax, any preparation containing rauwolfia should be administered with caution to patients with a history of depression or suicidal tendencies.

**WHAT ARE ITS ADVANTAGES?**

RAUDIXIN *offers:*

- effective, safe antihypertensive action
- bradycardia to increase cardiac efficiency
- tranquilization to help relieve emotional aspects of hypertension.

RAUTRAX *offers* all the advantages of Raudixin *plus* those of Flumethiazide:

- complementary antihypertensive action[2-3,7]
- reliable diuretic action[1-3,5]
- consistent effectiveness (tolerance not reported)
- effectiveness in patients refractory to chlorothiazide[10]
- sodium excretion comparable to chlorothiazide[1-2]
- less potassium loss than caused by chlorothiazide[3-5] or hydrochlorothiazide[4*]
- reduced need for rigid salt restriction in diet

*plus* those of Potassium Chloride:

- added protection against potassium and chloride loss during long-term therapy; minimizes need for dietary supplementation.

**WHAT IS THE SUPPLY?** RAUDIXIN: 50 and 100 mg. tablets, bottles of 100, 1000 and 5000. RAUTRAX: capsule-shaped tablets of 50 mg. Raudixin, 400 mg. flumethiazide and 400 mg. potassium chloride, bottles of 100.


**REFERENCES** 1. Montero, A. C.; Rochelle, J. B., III; and Ford, R. V.: Clinical Pharmacology of Flumethiazide, A Diuretic Agent. *Am. Heart J.* 57:494 (April, 1959). 2. Rochelle, J. B., III; Montero, A. C.; and Ford, R. V.: Observations on the Use of Flumethiazide in the Treatment of Edema. *Antibiotic Med. & Clin. Therapy* 6:267 (May, 1959). 3. Bodi, T.; et al.: Further Observations on Flumethiazide, A New Oral Diuretic. *Am. J. Cardiol.* to be published. 4. Moyer, J. H.; et al.: Some Observations on the Pharmacology of Hydrochlorothiazide. *Am. J. Cardiol.* 3:113 (Jan., 1959). 5. Fuchs, M.; et al.: The Diuretic Activity of Flumethiazide (Ademol). *Monographs on Therapy* 4:43 (April, 1959). 6. Moyer, J. H.; Dennis, E.; and Ford, R. V.: Drug Therapy (Rauwolfia) of Hypertension. II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension. A.M.A. *Arch. Int. Med.* 96:530 (Oct., 1955). 7. Montero, A. C.; Rochelle, J. B., III; and Ford, R. V.: The Use of Flumethiazide as an Adjunct in the Therapy of Hypertension. *New England J. Med.* 260:872 (April 23, 1959). 8. Wilkins, R. W.: Precautions in Use of Antihypertensive Drugs, Including Chlorothiazide. *J.A.M.A.* 167:801 (June 14, 1958). 9. Berkowitz, D.: The Effect of Prolonged Administration of Rauwolfia Serpentina (Raudixin) on Gastric Acidity. *Am. J. M. Sc.* 235:657 (June, 1958). 10. Cohen, B.; and Moser, M.: personal communication to Clinical Research Division, E. R. Squibb & Sons.


Clinical studies on Rautrax, published in *Monographs on Therapy*, available to physicians on request. Professional Service Dept., E. R. Squibb & Sons, 745 Fifth Ave., N.Y. 22.


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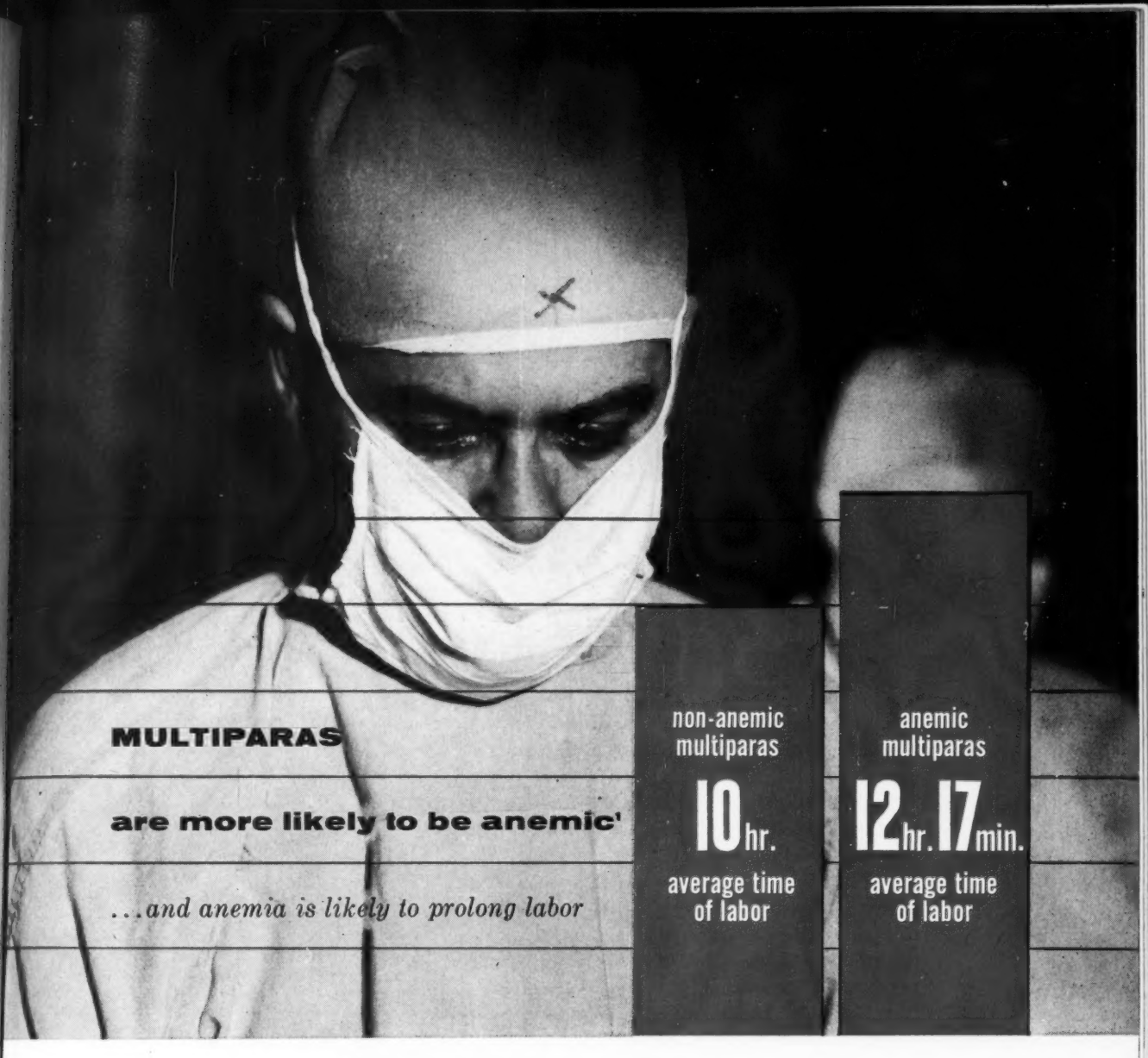
*See footnote on Page 1

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1. Traylor, J. B., and Torpin, R.: Am. J. Obst. & Gynec. 61: 71-74 (Jan.) 1951.

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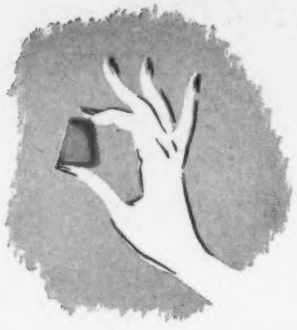

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*Eastman, N. J., Seibels, R. E.: J. Am. M. Ass. 139:16, 1949. Eastman, N. J., South. M. J. 42:346, 1949.

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October 31—Pennsylvania, $5. Address Mrs. Katherine M. Wollett, Bureau of Professional Licensing, 501 Education Bldg., Harrisburg.

November 1—Rhode Island, $1. Address Mr. Thomas B. Casey, Administrator of Professional Regulation, 366 State Office Bldg., Providence.

## Examination by National Board

The National Board of Examiners for Osteopathic Physicians and Surgeons conducts Parts I and II of its examinations on the first Thursday and Friday of each May and December at the six approved colleges. Application blanks may be obtained from the secretary of the Board or the dean of the college, and the completed application blank, together with check for the part to be taken, must be in the secretary's office by the November 1 or April 1 preceding the examination.

Examinations in Part I consist of anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; and bacteriology, including parasitology and immunology.

Part II consists of examinations in surgery, including applied anatomy, surgical pathology, and surgical specialties; neurology and psychiatry; public health, including hygiene; medical jurisprudence; obstetrics and gynecology; pediatrics; osteopathic principles, therapeutics, including pharmacology and materia medica.

Part III is an oral and practical examination given under the supervision of a chief examiner who is a member of the Board and by a panel of associate examiners. Subjects covered in Part III are: anatomy; physiology; pathology; osteopathic principles, therapeutics and pharmacology; surgery; ophthalmology and otorhinolaryngology; obstetrics and gynecology; physical and clinical diagnosis; public health and communicable diseases.

These are oral examinations which the candidate may take after having satisfactorily completed the first 6 months of a 1 year internship in a hospital approved by the American Osteopathic Association for intern training. Part III is given annually.

Eligibility requirements are as follows: Part I, satisfactory completion of the first 2 years in an approved school of ostoepathy; Part II, satisfactory completion of Part I and of the first two quarters or trimesters of the senior year in an approved osteopathic college; Part III, least 6 months of a 1-year internship approved by the American Osteopathic Association.
satisfactory completion of Part II and at

Applications must be filed with the secretary of the Board not less than 30 days prior to the examination dates. Address Paul van B. Allen, D.O., secretary, 4425 N. Meridian St., Indianapolis 8.

the Basic Sciences, Ripon College, Ripon.

### WYOMING

Examinations October 5 at Cheyenne. Address Franklin D. Yoder, M.D., secretary, Board of Medical Examiners, State Office Bldg., Cheyenne.

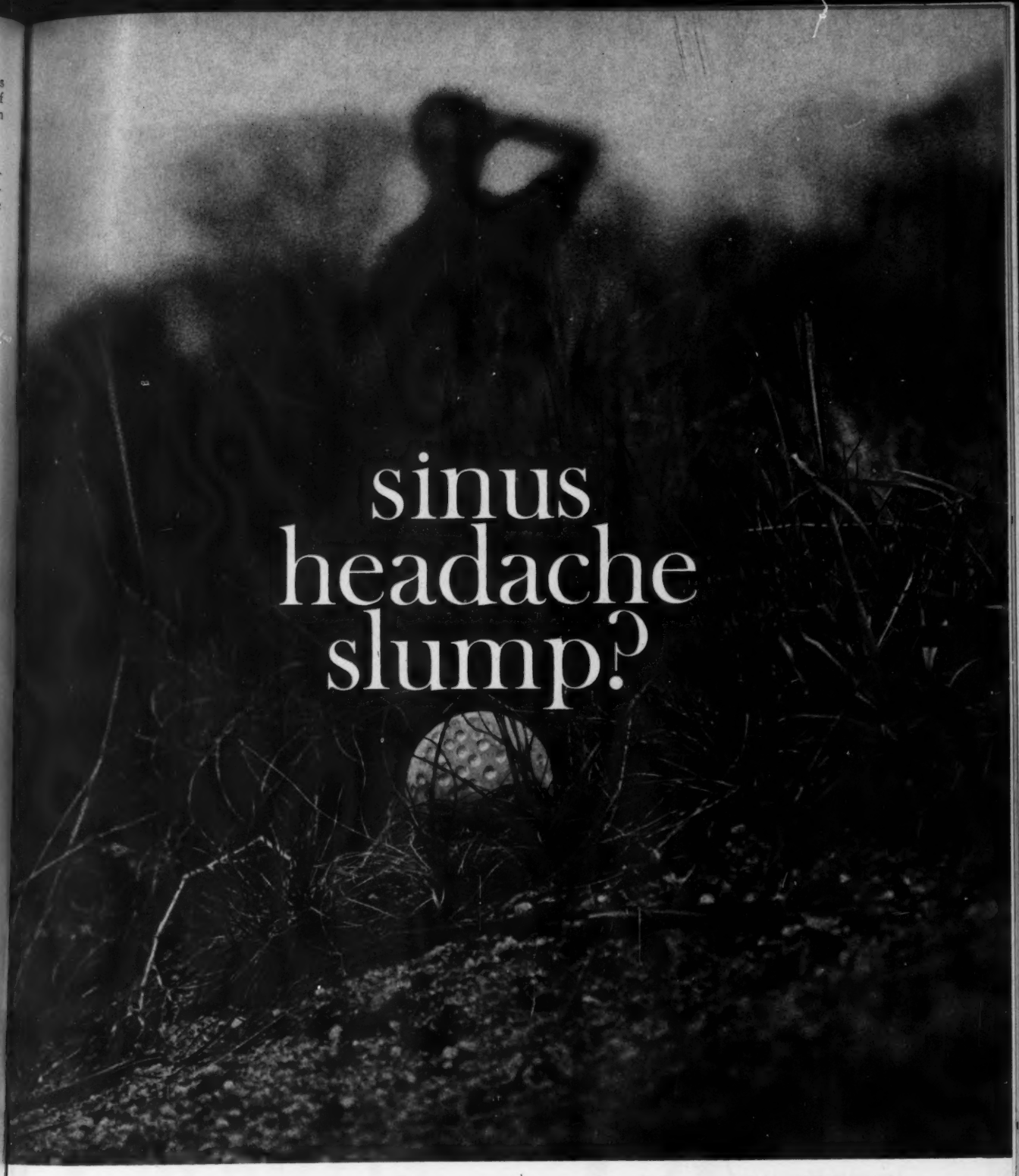
### ALBERTA

Examinations in September at Edmonton. Address Mr. G. B. Taylor, acting registrar, Alberta Medical Board, Office of the Registrar, University of Alberta, Edmonton, Canada.

## Reregistration of osteopathic licenses

September 1—Ohio, $2. Address H. M. Platter, M.D., secretary, Medical Board, 21 W. Broad St., Columbus 15.

During September—Nebraska, $3. Address Mr. R. K. Kirkman, Director of Bureau of Examining Boards, Department of Health, Lincoln 9, Nebr.

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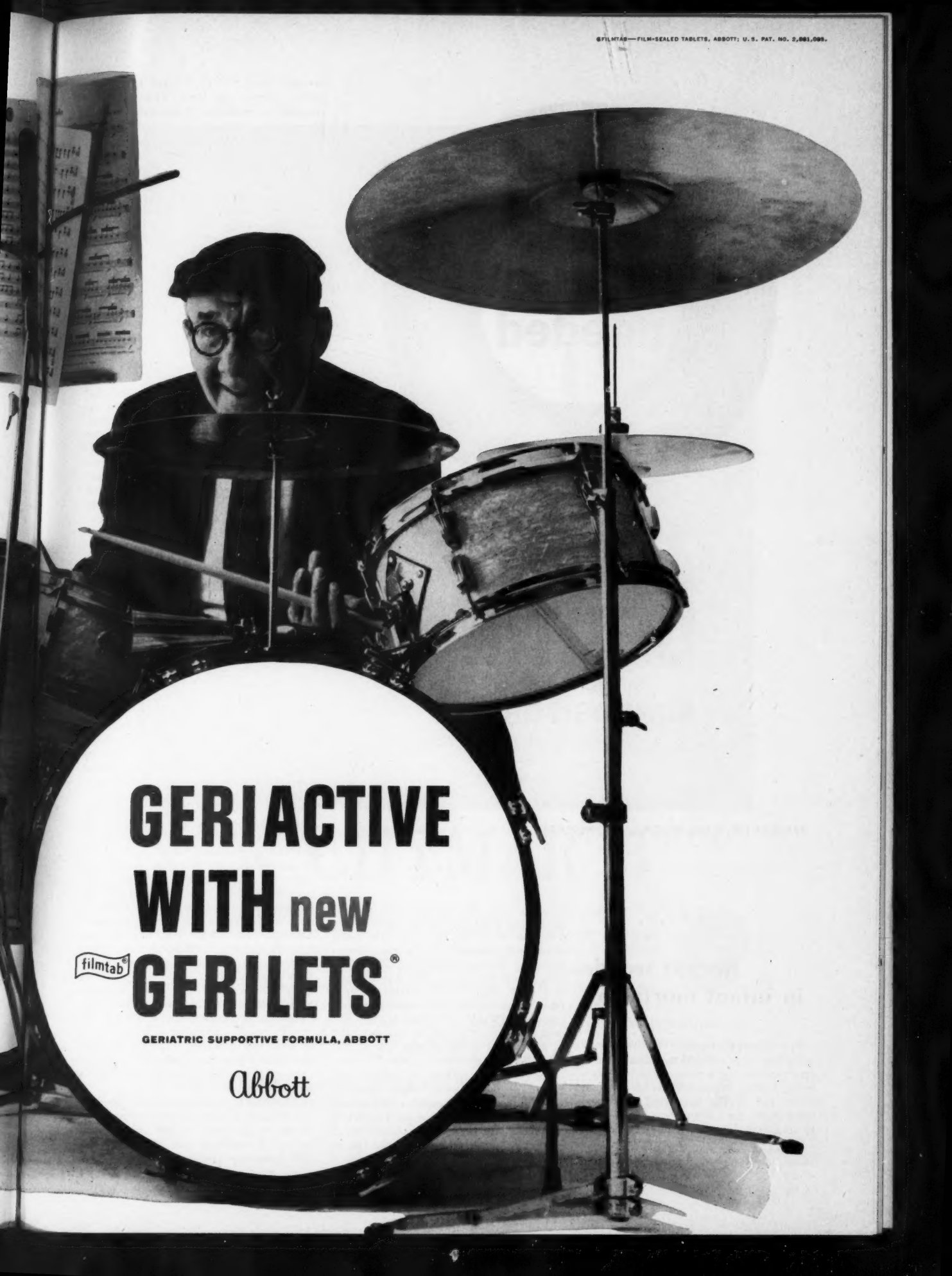

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# Recent trends in infant mortality*

The perennial problem of infant mortality has come into sharper focus in recent years as the number of babies born in the United States reached record high levels and as the long-term downward trend in the mortality among babies came to an abrupt, if temporary, halt. In each of the past five years births exceeded the 4 million mark, the total for 1958 being about 4¼ million. Provisional figures from the National Office of Vital Statistics show that there were approximately 113,000 deaths among babies under 1 year of age during 1958, equivalent to a rate of 26.9 per 1,000 live births; this compared with the rate of 26.4 per 1,000 in 1957 and with the all-time low of 26.1 in 1956.

Every State, without exception, succeeded in reducing its infant mortality rate in the decade between 1945-46 and 1955-56. In 31 States and the District of Columbia the decrease amounted to 25 percent or more. In New Mexico the infant mortality rate fell no less than 56 percent—from 89.5 to 39.5 per 1,000 live births. Maine and West Virginia each recorded a reduction of somewhat over 40 percent. Whereas one third of the States had infant mortality rates of at least 40 per 1,000 in 1945-46, not a single State was in that category a decade later.

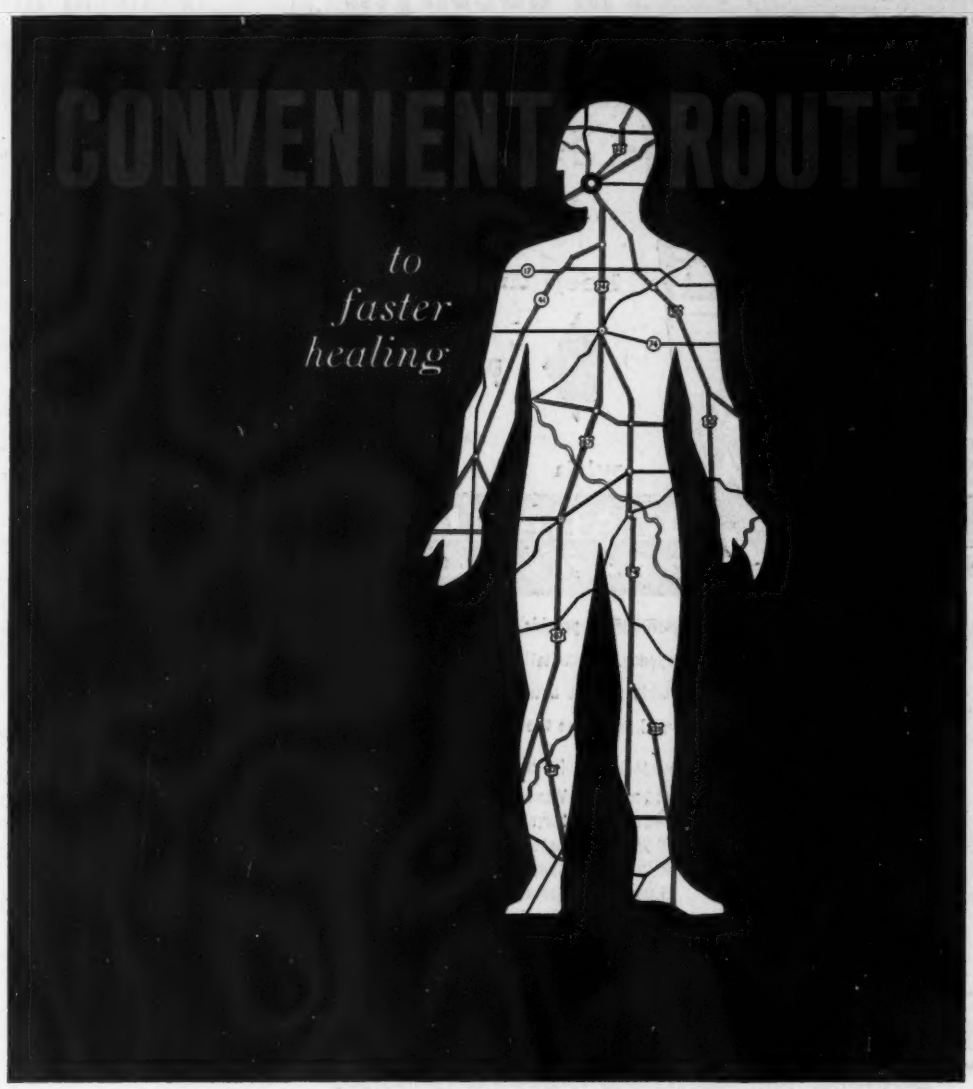
Although the geographic variation in the death rate under age 1 has been reduced, there is still a considerable difference between the States with the most favorable record and those at the bottom of the list. In Utah the infant mortality rate in 1955-56 was down to 21.1 per 1,000 live births; it was only slightly higher in Iowa, Idaho, Minnesota, and Connecticut. At the other extreme, New Mexico, despite its remarkable gains, recorded a rate not far from twice that in the best States. Not much better was the position of Mississippi, Arizona, and South Carolina.

Progress in reducing infant mortality has not been as rapid in the nonwhite as in the white population. In the United States as a whole, the decreases for the two groups amount to 20 and 31 percent, respectively, between 1945-46 and 1955-56. As a consequence, the disparity in infant mortality between nonwhite and white babies has widened. The mortality rate among nonwhite infants in the recent period was 42.5 per 1,000 live births, compared with 23.4 for white babies, a difference of more than 80 percent; 10 years before, the disparity was less than 60 percent. Nonwhites experience an excess mortality under age 1 in every region of the country.

All the major causes of infant mortality, except postnatal asphyxia, showed a decline in the decade under review. The death rate from the gastro-intestinal diseases—gastritis, dysentery, and diarrhea of the newborn—fell from 2.4 per 1,000 live births in 1945-46 to 0.9 in 1955-56, a drop of more than 60 percent. For whooping cough, the reduction in mortality amounted to about 75 percent; the other three communicable diseases of childhood—measles, scarlet fever, and diphtheria—have been reduced to vanishing proportions as causes of death in infancy. Among the major factors accounting for the improved control over the infections in infancy have been the widespread use of antibiotics, immunization procedures, improved nutrition, increased pre- and postnatal medical care, and a rise in the general standard of living. The moderate rise in the death rate from postnatal asphyxia, from 4.1 per 1,000 live births in 1945-46 to 4.4 in 1955-56, may reflect more accurate determination, and hence more accurate certification of cause of death in infancy. The mortality attributed to prematurity without further qualification has decreased about a third in the decade, but this probably reflects, in part at least, the increasing tendency for physicians to report more specific pathological conditions, such as postnatal asphyxia, as the cause of death.

The improvement in mortality has been considerably greater in later infancy than in the early weeks of life. For infants beyond 1 month of age, the death rate fell from an average of 11.9 per 1,000

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, May 1959.

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live births in 1945-46 to 7.2 in 1955-56, a reduction of 40 percent. For babies under 4 weeks of age, the reduction was little more than 20 percent—from 24.2 to 19.0 per 1,000 live births. The less rapid downward trend for this early age reflects mainly the limited gains made in reducing mortality in the first day of life. For infants under 1 day of age the death rate fell only 12 percent in the decade under review. Currently, nearly two fifths of all infant deaths occur in the very first day of life; 10 years earlier the proportion was one third. The record for very early life is unfavorably influenced by the fact that an appreciable number of infants who in the past would have died during fetal life are born alive, but succumb soon after birth.

Although a marked degree of control has been gained over mortality in infancy, the experience of the past few years clearly indicates that there is no room for complacency. The increase in infant mortality reported in 1957 and 1958 undoubtedly reflected the widespread prevalence of influenza in those years, but the fact that the death rate during most of 1958 was greater than in the like part of 1957 suggests that other factors may be involved. It should be possible to reduce the infant mortality rate for the country as a whole to that already attained by some of the States.

# Federal interest in juvenile delinquency*

*Aims C. McGuinness, M.D.*†

Many American children grow up in a rough world. They come from homes broken by desertion, divorce, or separation or are children of unwed mothers. These, generally, are the youngsters, deprived of a father's support, who are dependent upon the Federal-State aid to dependent children programs for the bare necessities of life. Throughout the Nation there are more than 2 million of these children.

There are many pressures. Thousands of children under 12 years of age, whose mothers work full time away from home, have no daytime afterschool supervision. There is no telling how many children live in undesirable neighborhoods with substandard housing. Every year millions of children change schools, moving from State to State, from town to town, or into different neighborhoods. Many children, of course, grow up in combinations of these unfortunate situations, these pressures.

And from their numbers come many of the disturbed children, the youngsters in conflict with the law, members of what has been called "the shookup generation."

Police currently handle more than 1.7 million cases of juvenile misbehavior a year. About a quarter of these, or 428,000, are referred to the juvnile courts by police; an additional 175,000 delinquency cases are referred to juvenile courts by parents, teachers, or social agencies, making a total of more than 600,000 delinquency court cases every year.

Their number grows. The delinquency cases handled by the juvenile courts increased by 137 percent between 1948 and 1957, whereas the child population from 10 to 17 years of age increased only 28 percent.

By 1965 there will be an estimated 30 million children in the United States in this high-risk, vulnerable age group, a third more than in 1957. If the incidence of juvenile delinquency continues to increase at the same rate as it has since 1948, then by 1965 the juvenile courts will be handling delinquent children at an annual rate of about a million cases. And by then, police will be handling a much greater number, many of which will never reach the courts.

There isn't any simple solution, as we all know. But we know, too, that juvenile delinquency has reached perilous propor-

*Reprinted from *Public Health Reports*, June 1959.

†Dr. McGuinness is special assistant to the Secretary for Health and Medical Affairs, Department of Health, Education, and Welfare. He presented the full text of this paper before the Michigan Branch of the American Academy of Pediatrics in Detroit, March 10, 1959.

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## Standard Family Court Act

Family courts would take the place of separate juvenile and domestic relations courts in model State legislation developed by the National Probation and Parole Association in cooperation with the Children's Bureau, Department of Health, Education, and Welfare, and the National Council of Juvenile Court Judges.

The model legislation, entitled the "Standard Family Court Act," was published in April 1959, in the *Journal of the National Probation and Parole Association*, as the culmination of a 4-year project.

The need for a unified court approach to family problems has been indicated by various students of judicial procedure since early in this century. The new standard act represents a radical departure from previous model legislation by bringing together, under the jurisdiction of a single court, the major legal issues and problems of a personal nature which arise within families.

The family court, as proposed, would be set up on a statewide basis and would include a corps of specialized services within each court to treat such problems as delinquency and neglect, as well as provide special services in cases involving divorce, legal separation, support, adoptions, and certain criminal actions involving adults who commit offenses against children or other members within a family.

The new proposal, for the use and implementation by State legislatures, spells out the duties and responsibilities of the court as well as its relationship to other agencies. It sets up safeguards around the rights of parents and children in its provisions for legal counsel and in certain limitations it places on the court's procedures and disposition powers.

Specifically prohibited by the act would be transfer of a delinquent child to an institution for adult criminals; placement of a neglected child in an institution for delinquents; and subjecting a child to criminal court penalties and juvenile court control for the same offense.

The organizational pattern of the family court act would permit the establishment on a national basis of an accurate count of the number of children and families in trouble. Statewide reporting exists now in several States but not on a unified basis.


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tions. Two things urgently need doing: first, we must arouse ourselves and our communities to get on with the job of doing those things that could and should be done now, and second, we must pursue with vigor the search for better understanding of the basic conditions which lead to this fearsome complex of social behavior.

### COOPERATIVE EFFORTS NEEDED

Successful efforts to combat juvenile delinquency require cooperation. It is a job for a number of people: the parents and relatives, the doctor, the psychologist, the teacher, the social worker, the minister, the lawyer, and the police. And it is a job for citizens groups, voluntary organizations, and government at all levels, local, State, and Federal. The main work, of course, must be done in the communities, for troubled youngsters must be reached in person, in their homes, their churches, their schools, or on streets and back alleys, if that's where they are.

At the same time, juvenile delinquency is a matter of State and Federal concern. Because it is a highly complicated problem, many diversified approaches are required in its solution. In one way or another, it is of concern to virtually every unit of the Department of Health, Education, and Welfare.

The Children's Bureau, with responsibility for helping improve the conditions under which children are born and grow up, has a particular concern for those youngsters in conflict with society. In 1955 it established the Division of Juvenile Delinquency Services, whose staff members on request give professional consultation to juvenile courts, probation officers, police, youth commissions and councils, and citizens' organizations in cities and counties all over the country.

An important function of this unit is the development, in consultation with State and local authorities, of standards and guides for the use of professional personnel and agencies concerned with juvenile delinquency. A much-needed standard for the use of juvenile courts

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Supplied: bottles of 24 tablets. **Roussel Corporation,** 155 E. 44th St., New York 17

1. Hayden, G.E.: Am. J. Obs. & Gynec. 76:271, 1958. 2. New & Nonofficial Drugs: J.A.M.A. 168:181, 1958. 3. Page, E.W.: GP 9:53, 1954.

has been completed. In cooperation with the National Probation and Parole Association and the National Council of Juvenile Court Judges, the Children's Bureau is now working on a revision of the family and juvenile court acts.

As in the past, the Children's Bureau is the focal point in the Federal Government for initial planning of the White House Conference on Children and Youth. This historic conference, which has been called by the President of the United States in every decade in this century, will concern itself in 1960 with lasting values in the changing world. The problems of juvenile delinquency undoubtedly will have an important place in the program.

Between now and 1960, communities, States, and the Federal Government will be examining how our changing world is affecting children. Specifically, study groups will explore such things as family, religion, and the arts. They also will look at community organizations and services as they impinge on the life of the child. In addition, they will inquire into the manner in which the behavior of adults, in their interactions with children and youth, deter or foster individual fulfillment and constructive services to humanity.

I am sure the many studies leading up to the conference will give us valuable new insights into the ultimate solution of juvenile delinquency prevention.

### PREVENTION MAIN OBJECTIVE

Prevention is the central objective of many other Federal activities that bear directly or indirectly on the question of juvenile delinquency. In 1956, the President called the first Conference on Fitness of American Youth, and subsequently created the President's Council on Youth Fitness and a Citizens' Advisory Committee to that council. For the past 2 years it has been my privilege to represent the Department of Health, Education, and Welfare on the Interagency Advisory Group to the Council.

The President has thus brought together many creative minds and new energies for a single purpose: to stimulate and encourage the building of men and women of physical, moral, and spiritual strength.

In the words of Homer C. Wadsworth, of Kansas City, chairman of the Citizens Advisory Committee, "The Council should serve three main purposes: (*a*) to continue to alert the American people to the need for special emphasis on the fitness of American youth; (*b*) to act as a clearinghouse for information on activities proven to be especially effective in this regard; and (*c*) to encourage a more effective coordination of public and private services in our communities designed to promote youth fitness."

These and other related activities are bound to bring enormous benefit to our children and young people. A really heartening advance was made for children when Congress last fall amended the Social Security Act to authorize the Children's Bureau to provide welfare services for children in urban areas on the same basis as for rural children, services that will help to keep children in their homes and strengthen family life; that protect babies who are going to be adopted; that provide good foster homes when necessary; that help children in danger of becoming delinquent. This is the first time that Federal funds have been authorized to augment and strengthen local and State public and voluntary efforts.

In 1956, Congress amended the Social Security Act to give emphasis to social services in public assistance programs that lead, importantly, to the strengthening of family life and that help stimulate city and community efforts to help families and individuals get back on their feet and to tap all sources of help for families in trouble.

By incorporating in the legislation the word "services," Congress gave a powerful incentive to the States to move in the direction of prevention of human disasters that so frequently happen when a family undergoes a social breakdown. To move in the direction of helping people off assistance rather than helping people on assistance is the goal toward which all these programs must strive.

### THE FAMILY APPROACH

The family approach to social problems is of real significance in the treatment of juvenile delinquency. Disturbed youngsters often come from disturbed families. And when we, as a Nation,

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*Thos. Leeming & Co. Inc.* New York 17.

1. Slipyan, A.: J.A.M.A. 168:147, Sept. 13, 1958. 2. Fuller, H. L. and Kassel, L. E.: Antibiotic Med. & Clin. Therapy, 3:322, 1956.

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- granular powder form allows infinite dosage variation for the full range of constipation... occasional to obstinate... from childhood to geriatric.

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- easy-to-take... really tastes good, lemon-flavored.

**CONTENTS:**

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from occasional to obstinate...
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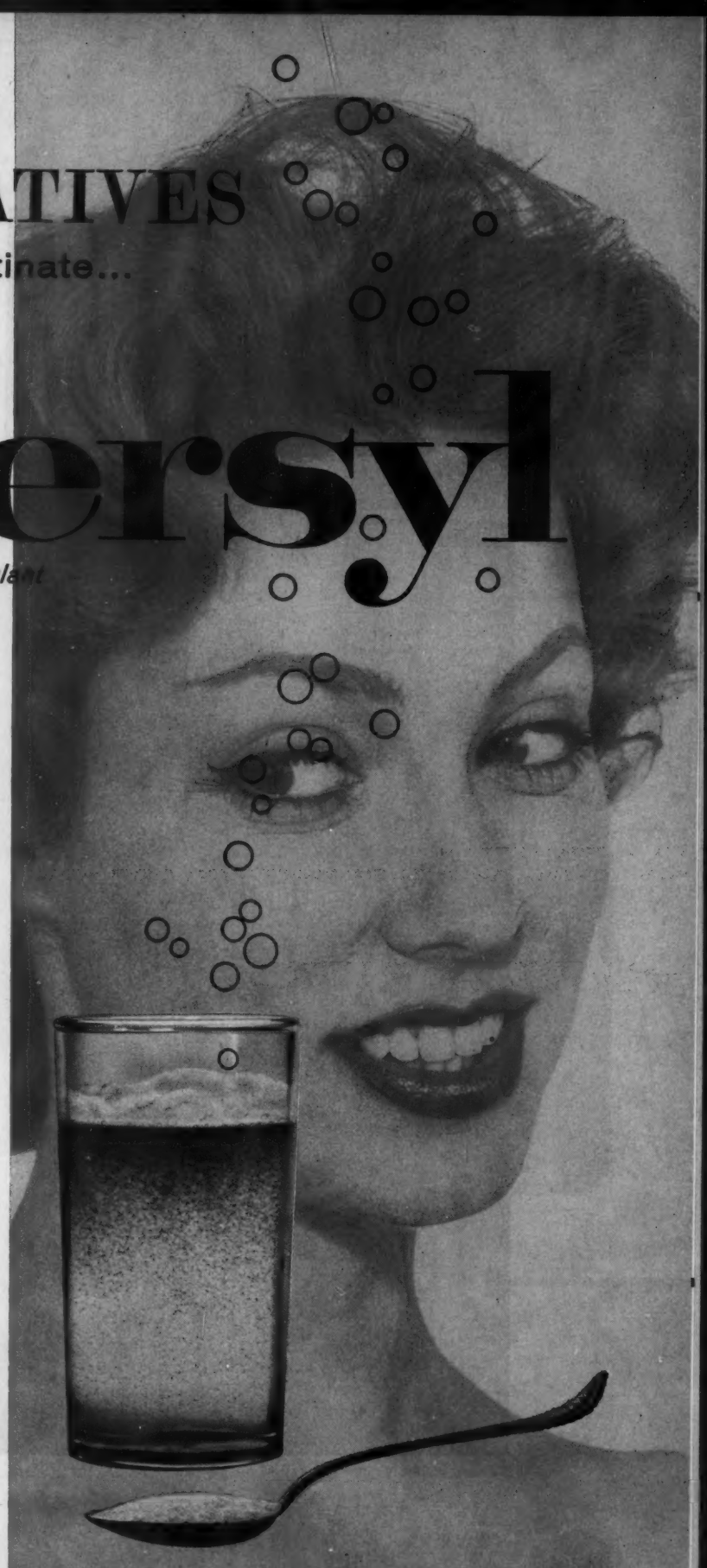

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- more soft, lubricating bulk and milder peristaltic stimulation combine to produce soft, formed stools.
- sodium-free, non-irritating.

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Each 7 Gm. pink granular powder *(approximately 1 rounded teaspoonful)* provides:

Psyllium hydrocolloid ..... 3 Gm.
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When migraine that has beset a patient in her twenties suddenly returns in her fifties, a "little stroke" should be suspected.[1] In such migraine attacks, when ushered in by one or more "little strokes," pain may be minimal and the dominant feature may be spells of nausea, dizziness, depression, retching, fatigue, abdominal pain or transient blindness.[1] ■ Early detection of "little strokes" resulting from capillary fragility can gain vital therapeutic time to support capillary resistance and repair.[2]

1. Alvarez, W. C.: Geriatrics 13:647, 1958.
2. Gale, E. T., and Thewlis, M. W.: Geriatrics 8:80, 1953.

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hesperidin complex and ascorbic acid

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# "SAFE AND EFFECTIVE MAINTENANCE THERAPY...HAD BEEN A PROBLEM AT OUR INSTITUTION UNTIL WE USED GITALIN [GITALIGIN]..."*

*Arteriosclerotic Heart Disease*

**WIDEST SAFETY MARGIN—AVERAGE THERAPEUTIC DOSE IS ONLY ⅓ THE TOXIC DOSE.** The average therapeutic dose of other digitalis preparations is ⅔ the toxic dose.‡

**FASTER RATE OF ELIMINATION THAN DIGITOXIN OR DIGITALIS LEAF.** Therefore should toxicity inadvertently occur, symptoms would be of much shorter duration with GITALIGIN.

**THESE SIMPLE DOSAGE EQUIVALENTS MAKE IT EASY TO SWITCH YOUR PATIENT TO GITALIGIN**—0.5 mg. of Gitaligin is approximately equivalent to 0.1 Gm. digitalis leaf, 0.5 mg. digoxin or 0.1 mg. digitoxin.

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*HARRIS, R., AND DEL GIACCO, R. R.: AM. HEART J. 52:300, 1956 • †WHITE'S BRAND OF AMORPHOUS GITALIN • ‡BIBLIOGRAPHY AVAILABLE ON REQUEST

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A NEW ACHIEVEMENT

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# New MOL-IRON® PRENATAL
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Less than ½ the usual cost. Only 1 tablet a day. Especially "special" because of MOL-IRON, the unique molybdenized ferrous iron complex — for over 10 years unexcelled in tolerance and effectiveness, particularly in pregnant women!

Bottles of 30 (month's supply)/Bottles of 90 (trimester's supply)

Just one Tablet a day provides:

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| Vitamin A | 6000 U.S.P.U. |
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| Vitamin C (Ascorbic Acid) | 100 mg. |
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| Folic Acid | 0.25 mg. |
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| Pyridoxine | 2 mg. |
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| Mol-Iron: | |
| Ferrous Sulfate | 75 mg. |
| Molybdenum Oxide | 1.1 mg. |
| Calcium | 150 mg.* |
| Cobalt | 0.1 mg. |
| Copper | 1 mg. |
| Iodine | 0.2 mg. |
| Magnesium | 6 mg. |
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| Zinc | 1.5 mg. |

*FROM CALCIUM CARBONATE—400 MG.

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GENTIAN VIOLET

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Hyva Gentian Violet Tablets virtually eliminate the principal disadvantages of present gentian violet preparations. They may be handled without staining and have psychological and aesthetic acceptance.

Hyva combines the fungicidal action of gentian violet (1.0 mgm.) with three active surface reducing agents and bactericides.* These active ingredients have been incorporated into a mildly effervescent "gel" forming base which provides for maximum and prolonged effectiveness. Shorter treatment time is required without the usual messiness normally experienced.

One tablet intravaginally for 12 nights. When necessary one tablet twice daily may be recommended. Patient should take a Nylmerate Solution water douche on arising and preceding next tablet application.

*Prescribe Hyva Gentian Violet Tablets—boxes of 12 tablets.*

*Alkyldimethylbenzylammonium chloride (0.5 mgm.)
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are able to do a better job of reaching these multiproblem families, we will have come a long way in helping prevent juvenile delinquency and other social ills. Among the individual members of these families will be found not only juvenile delinquency but combinations of all the other problems that confront our society today: mental illness, physical disability, alcoholism, unmarried parenthood, broken homes, prostitution, drug addiction, and many others. These are the marginal families, dependent or potentially dependent. Their children are in "clear and present danger."

It should be emphasized that multiproblem families are not confined to low-income groups. There are probably as many multiproblem families among the self-supporting as there are among families on public assistance. Problems of a family often first show up on hospital records, when an illegitimate baby is born or a mentally ill person is identified, or on police records, when a youngster comes in conflict with the law, or even on school records, when a child is consistently truant or an academic failure.

No one, of course, knows just how many of these families there are. But from a recent analysis of 25 cities based on records of official agencies, we get a rough idea of the number of families that have undergone a social breakdown. In half the cities the rate was 67 families per 1,000. Southern cities had a uniformly higher rate.

These families are not all in hiding. Many are known to social agencies, teachers and the clergy, and members of our profession, and they are frequently known to the police. It makes sense to bend every effort to reach a family before it becames dependent, or failing that, to help a swamped family get back on its own feet, emotionally and financially.

And that again is what the Department is trying to foster through its new emphasis on social work in the public assistance programs. This approach is gaining momentum all the time. But the full potential of public assistance programs will be approached only when all the resources of the community, public and private, that could possibly be of help to families in trouble are brought together in an organized way to bear upon immediate problems.

### PROGRAM INTERRELATIONSHIP

In this and other programs of the Department, we seek to destroy the seeds of social evils before they have had a chance to germinate. The programs are interwoven, interrelated.

The Office of Education, alerted to the role that schools can play in identifying and helping delinquents or potential delinquents, has contracted with a number of universities and colleges for research studies on various aspects of juvenile delinquency in its relation to education.

One of the provisions of the new National Defense Education Act should have an extremely beneficial effect in the prevention of juvenile delinquency. This is the title that sets up a nationwide system of testing, backed up by counseling and guidance programs. It seems to me that when special talents in boys and girls are identified when they are young, and when they are encouraged to pursue these talents and make the most of themselves, there will be a good deal less risk that they will become members of street gangs or get in trouble with the law. School counselors in many cases should be able to identify potentially delinquent children and bring community resources to bear on their problems in time to prevent real trouble.

The Public Health Service is intensifying its efforts in areas of mental health, with a number of significant programs relating to juvenile delinquency. Important fundamental work was done last year by scientists of the National Institute of Mental Health toward clarifying some of the basic mechanisms of psychological development and human behavior.

It is very encouraging to note the widespread expansion of community mental health programs. A high share of the cost of these programs is being provided by State and local resources. An alltime high of $54 million was expended, from all sources, for these purposes during the past year, but only 7.4 percent of this represents Federal funds.

### DELINQUENCY IN PERSPECTIVE

I think, in any discussion of juvenile delinquency, we should put statistics in perspective. Not all of our children are growing up to be troublemakers. Most parents do a good job. Churches of all

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*Record of patient with congestive failure, treated at a leading Philadelphia hospital. Photos used with permission of the patient.*

# marked pitting edema (4+) cleared in 4 days with Esidrix

Highest fluid yields, lowest blood-pressure levels yet achieved with oral diuretic-antihypertensive therapy.

***Indicated in:***

***congestive heart failure***
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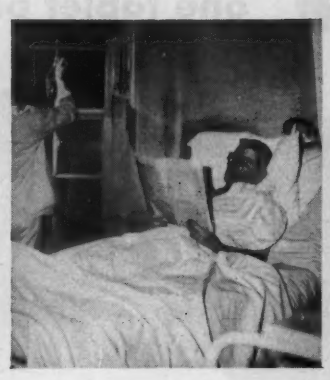
DOSAGE: Esidrix is administered orally in an average dose of 75 to 100 mg. daily, with a range of 25 to 200 mg. A single dose may be given in the morning or tablets may be administered 2 or 3 times a day.

SUPPLIED: *Tablets,* 25 mg. (pink, scored); bottles of 100 and 1000. *Tablets,* 50 mg. (yellow, scored); bottles of 100 and 1000.

2/2005MK

*remember*
**Serpasil®**
(reserpine CIBA)
for the anxious hypertensive with or without tachycardia

L.S., 81-year-old patient with complaint of painless hematuria admitted to hospital on 3/3/59. Past history included congestive heart failure of 15 years' duration. **Clinically significant symptoms:** expiratory wheezes over entire chest; bilateral coarse rales of both bases; slight abdominal distention (without evidence of ascites); palpable liver 2-3 fingerbreadths below rib cage; bilateral pitting edema (4+) of pretibial and ankle areas. **Admission diagnosis:** hematuria of unknown origin; arteriosclerotic cardiovascular disease; poorly compensated heart failure; and chronic pulmonary fibrosis with pulmonary insufficiency.



Patient was put on regimen of bed rest, moderate salt restriction, digitalis and pulmonary decongestants. When ankle edema, hepatic congestion and rales failed to clear by 3/6, Esidrix 50 mg. b.i.d. was ordered. By 3/8 L.S. had lost 3 pounds. Rales decreased; there was 1+ pitting edema of ankle area only. He felt more comfortable, was able to enjoy reading newspapers and magazines in bed.

Ambulatory on the 4th day of Esidrix therapy, L.S. visited his neighbors down the hall, played checkers with another patient. There was no evidence of ankle edema. By 3/11, patient's weight had dropped 2 more pounds and rales were gone. Patient tolerated cystoscopy and fulguration of a small bleeding polyp in his bladder on 3/12 very well. On 3/14 he was discharged.

| Patient L.S. Date | 3/4 | 3/5 | 3/6 | 3/7 | 3/8 | 3/9 | 3/10 | 3/11 | 3/12 | 3/13 |
|---|---|---|---|---|---|---|---|---|---|---|
| Urinary Output (ml.) | 840 | 690 | 960 | 2140 | 1230 | 660 | 1220 | 1350 | -- | -- |
| Weight (lbs.) | 139 | -- | -- | -- | 136 | -- | -- | 134 | -- | -- |
| Esidrix Dosage (mg./day) | 0 | 0 | 50 | 100 | 100 | 100 | 100 | 100 | 50 | 100 |


# Esidrix T.M.

(hydrochlorothiazide CIBA)

- **relieves edema in many patients refractory to other diuretics[1]**
- **often produces greater weight loss than parenteral mercurials or chlorothiazide[2]**
- **provides a greater average reduction in blood pressure than chlorothiazide[3]**
- **is exceptionally safe . . . reduces the likelihood of electrolyte imbalance**

1. Brest, A. N., and Likoff, W.: Am. J. Cardiol. 3:144 (Feb.) 1959. 2. Clark, G. M.: Clinical report to CIBA.
3. Dennis, E. W.: Clinical report to CIBA.

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**— ONE TABLET CONTAINS *IN EXTENDED RELEASE FORM:***

***to inhibit appetite*** **— d-Amphetamine Sulfate 15 mg.**

***to offset nervous stimulation*** **Amobarbital . . . . . 60 mg.**
**Phenobarbital . . . . . 20 mg.**

*plus vitamins and minerals to provide important nutrients*

**VITAMINS:** A, 5,000 USP units; D, 500 USP units; C, 75 mg.; $B_1$, 3 mg.; $B_2$, 3 mg.; $B_6$, 0.5 mg.; $B_{12}$ as IONEX-12*, 3 mcg.; Niacinamide, 30 mg.; d-Calcium Pantothenate, 5 mg.

**MINERALS:** Calcium, 225 mg., Copper, 0.75 mg.; Iron, 10 mg.; Iodine, 0.15 mg.; Manganese, 1 mg.; Phosphorus, 90 mg.; Zinc. 0.3 mg.

*Stuart's absorption-enhancing resin complex of Vitamin $B_{12}$ ($B_{12}$ from Cobalamin)

**SUGGESTED DOSAGE:** 1 tablet taken after rising supplies uniform control throughout the day.

**SUPPLIED:** Bottles of 100 orange capsule-shaped tablets at all pharmacies.

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**with musculoskeletal pain?**

**remember PAIN Zactirin®**

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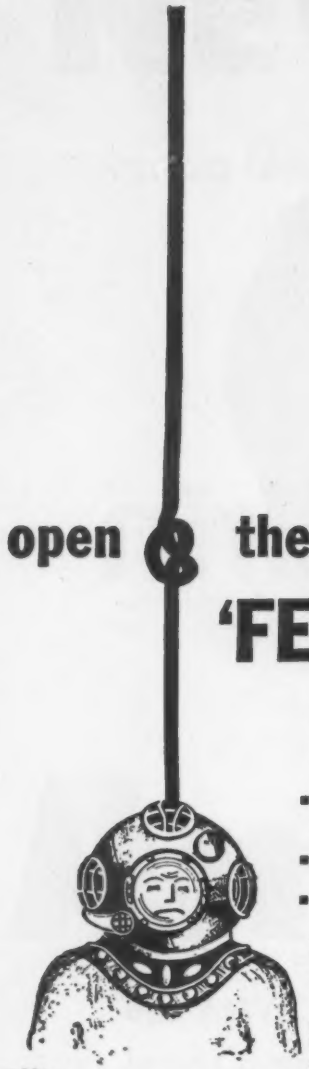
DOSAGE: *Adults and Children over 8 years*— 1 or 2 tablets, three times daily.
*Children 2-8 years*— 1 tablet daily, or as required.

Each tablet contains: 'Sudafed'® brand Pseudoephedrine Hydrochloride, 30 mg.; 'Perazil'® brand Chlorcyclizine Hydrochloride, 25 mg. Bottles of 100, sugar-coated.



BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

denominations have a large membership among children and young people. And our schools and numerous youth-serving organizations are doing a commendable job in promoting good citizenship.

But for those children who are delinquent, or likely to become so, we have an obligation to do what we can, when and where we can, and to start doing it now!

From its earliest days, our Nation has been a symbol of freedom to the rest of the world, freedom to stretch our minds in the way they incline, freedom of opportunity. Of the world's 2½ billion people, somehow our Nation of 175 million has managed to accumulate almost half of the world's wealth.

We have the resources and much of the know-how to end hunger and scarcity and poverty and disease, and to slash out at social evils that have beset mankind through the ages. We have the resources to encourage more intellectual attainment among more young people. In our own generation we could bring untold benefit not only to ourselves and our children, but to future generations of all people of the world.

Surely, amidst our plenty, we can realize the sheer practicality and find the resources of time, energy, money, and creative thinking to help these thousands of boys and girls in our society whom society, in some way, has failed and whom we have tagged "delinquent."

# Are parents changing?*

*Irving Sigel, Ph.D.*
Chairman of Research,
Merrill-Palmer School, Detroit

The study of child-rearing practices has been intensified by psychologists, anthropologists, and sociologists in the past decade. This demonstrates a growing awareness of need for more empirical data about the development of children. We assume, and apparently correctly, that knowledge of the child's experiences during the course of his development is important for the understanding of adult behavior, and so also for increasing our knowledge of the prerequisites of mental health. Moreover, examination of child-rearing practices is important as a basis for comprehending cultural continuity and change, for culture is transmitted through child-rearing practices that aim to develop personalities compatible with cultural requirements.

Many observers of the social scene have commented on the social and psychological effects of changes occurring in our society: the movement toward conformity and materialism; the emotional quietism in educational circles; the decentralization of large urban areas; the mounting levels of production and consumption; and the increasing speed and uncertainties of the space age. There is need, however, to get beneath the surface and begin empirical validation of these assumed changes and to assess the intensity of their impact, particularly since they can affect our national life and even survival. Of course, the segments of a society as complex and diverse as ours change in varying degrees and in varying ways. The problem for the social scientist is to develop concepts and methods by which the broader changes can be examined in relation to their impact on children. One aspect of this larger problem is the relationship between one's occupational situation and his value system as reflected in his child-rearing practices.

Daniel R. Miller and Guy E. Swanson in their recent book "The Changing American Parent"[1] add new dimensions for the study of child-rearing practices by presenting the concepts of "individuated entrepreneurial" and "welfare bureaucratic" personalities—both of which reflect the individual's type of occupational setting. Heretofore, nonsociologists have tended to adopt many sociological concepts, including social class and social structure, often without closely examining their psychological significance. In this book, however, a psychologist (Miller) and a sociologist (Swanson) have integrated their combined knowledge and points of

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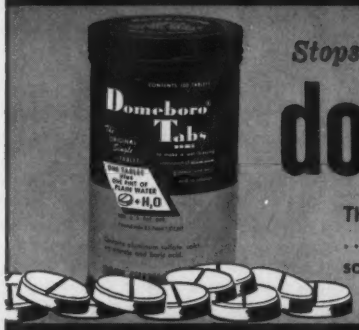


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view toward a common problem: the study of child-rearing practices in a large urban community. The book is significant as an attempt to investigate the role of the economic social structure in child rearing.

## OCCUPATIONAL SETTINGS

The authors apply the terms "individuated entrepreneurial" and "welfare bureaucratic" to situations in which individuals perform their tasks—their places of occupation. These they call the "integration setting" since they denote the way an individual becomes integrated with others.

The "entrepreneurial" refers to integration settings having the following features: They are small in size, have high division of labor, possess relatively small capital, and provide mobility and income through risk taking. Such integration settings, according to the authors, tend to isolate people from one another and from the controlling influence of the broader cultural norms. They hypothesize that in families where the primary occupational setting is entrepreneurial the parents will encourage their children to be highly rational, to exercise great self-control, to be self-reliant, and to manipulate their environment.

The term "welfare bureaucratic," on the other hand, refers to large organizations which employ many different kinds of specialists, have substantial capital, and pay salaries or wages. Upward mobility in the "welfare bureaucratic" setting occurs through specialized training for particular positions rather than through success in taking risks. This type of setting offers the individual considerable support in meeting personal crises, as well as considerable security in regard to continuity of employment and income. The authors hypothesize that the children of persons employed in such settings will be encouraged to be accommodative, to allow their impulses some spontaneous expression, and to seek direction from organizations in which they participate.

Whether or not the authors have oversimplified these settings or whether such clear distinctions exist are open questions. The interesting point is that the authors have tackled a traditional anthropological problem, to test whether the value system held by the parents—which, they hypothesize, is reflected by the father's occupational setting—leads to, or is related to, specific child-rearing practices. Thus, a kind of culture continuity is envisaged, the children being reared to adapt to the kinds of settings their parents value.

The validity of such hypothesizing has yet to be fully demonstrated, for the study's findings are not striking. Part of the failure to obtain the kinds of findings expected may arise from the limited length of the interviews and of the limited scope of the study; for the authors have tended to focus on mothers, who, in the families studied, are not direct participants in either type of occupational setting. Studies of this nature, bringing in both parents, are needed.

The intent of this discussion, however, is not to focus on the methodological limitations, of which the authors themselves are aware, or on their methodological sophistication which becomes self-evident in many sections of the volume. It is to note the contribution of their orientation to study of the broad social scene and examine some of the implications.

As the authors in this volume tend to suggest, a "welfare bureaucratic" occupational setting, where certain kinds of individualism are not encouraged, frustrates some persons to the point of unhappiness. On the other hand, it makes others feel relatively comfortable and secure. The big question that arises in connection with the effects of this type of setting on the person's child-rearing practices is whether or not he is attracted to it because of the kind of goals, values, and attitudes he has, or merely because of the limited choices available or the attractiveness of the salary. A person is faced with potential conflict if he does not really want to work in this type of setting and is seduced into it by its security-giving features. In pointing up these kinds of questions, the authors pose important problems for further research. The fact that some of the study's findings reflect differences between the entrepreneurial and bureaucratic groups suggests the value of delving further into these relationships.

## THE STUDY

The authors interviewed 582 mothers in the Greater Detroit area. They classified them into entrepreneurial and bureaucratic groups, with further breakdowns

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within each group into upper-middle and lower-middle class.

They have found some significant differences between the entrepreneurial and the bureaucratic mothers: for example, among the lower-middle-class groups, entrepreneurial mothers are more likely than bureaucratic mothers to begin urinary training before the baby is 11 months old. Similarly, a difference exists between the two lower-middle-class groups in the use of symbolic punishments—blame to induce feelings of guilt rather than direct action such as spanking. These practices are tests of the author's hypotheses: that early training is related to such characteristics as self-reliance and independence, and consequently, that those individuals who are so oriented act accordingly, but the differences between entrepreneurial and bureaucratic groups do not appear in the upper-middle-class families. The data tend to support the theory that entrepreneurial mothers tend to place more emphasis on an active manipulative approach toward life than bureaucratic ones.

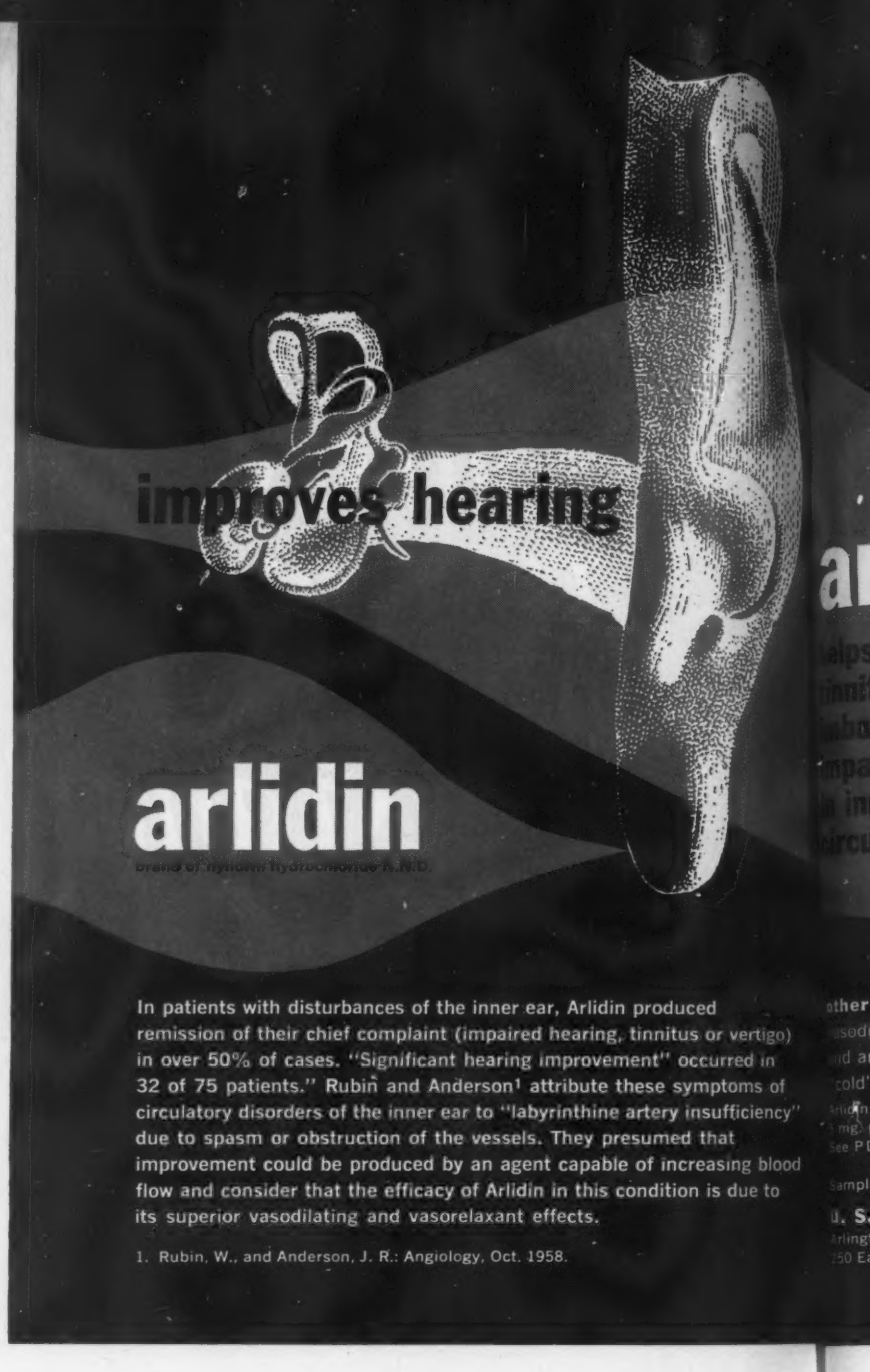
The authors report little success in forecasting differences between the upper and lower classes *within* the entrepreneurial group. However, when they compare the entrepreneurial and bureaucratic groups and control for religion—Protestant and Roman Catholic—a number of their findings are in the anticipated direction, especially when they compare the two religious groups of one entrepreneurial group, holding social class constant. An illustration of the findings is that Protestants are more likely than Catholics to use symbolic rewards and punishments. The same results are not found with the bureaucratic group.

Bringing in religion as a variable is in itself a considerable contribution to the study of child-rearing practices. However, this reviewer was surprised to note that Protestants are lumped into a single group, since they vary so in religious ideology. Control for ethnicity is suggested, but not sufficient for the purpose.

Thus, in attempting to analyze together the effects of religion, integration setting, and social class, the authors move away from the simplicity of the criteria generally used in child-development research toward a consideration of the large variety of criteria that should be recognized and controlled. They are completely aware of the complexity of what they are studying.

Near the end of the book they speculate about the relation of family personality to bureaucracy; the effects of increasing urbanization on the family; the question of companionship in the entrepreneurial and bureaucratic families; and what persons in these groups tend to expect of each other and of themselves in a society where occupation and income are measurements of status.

Although the authors say their concern is with the *changing* American parent, many questions as to how and to what degree parents have changed are left unanswered. This is at least partly due to the fact that little research of this nature has been done in the past. However, the authors do note some changes reflecting societal changes in requirements and expectations, and present an interesting historical analysis of shifts in child-rearing orientation and philosophy.




In patients with disturbances of the inner ear, Arlidin produced remission of their chief complaint (impaired hearing, tinnitus or vertigo) in over 50% of cases. "Significant hearing improvement" occurred in 32 of 75 patients." Rubin and Anderson[1] attribute these symptoms of circulatory disorders of the inner ear to "labyrinthine artery insufficiency" due to spasm or obstruction of the vessels. They presumed that improvement could be produced by an agent capable of increasing blood flow and consider that the efficacy of Arlidin in this condition is due to its superior vasodilating and vasorelaxant effects.

1. Rubin, W., and Anderson, J. R.: Angiology, Oct. 1958.

## RESEARCH STIMULUS

This book, then, offers a variety of suggestions for future research. The limitations in the extent and depth of the undertaking should not detract from its value as a stimulus to future research and conceptualization.

One can argue that the assumption that the occupational setting is of such paramount value in relation to child rearing is highly inferential. There is also the question: Does the mother necessarily reflect the values held by her husband? Some studies have indicated that there is no correlation between mothers' and fathers' child-rearing practices. The authors themselves give a schema suggesting further areas of detailed thinking in regard to the relationship between a person's occupational setting and value system.

One could go on endlessly posing questions for further research as a result of reading this book. However, the questions already raised indicate that some caution should be employed in moving "whole hog" in the direction the authors

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suggest. Nevertheless, exploratory work of this kind offers new vistas for more inclusive types of conceptual schemes for research workers, helping us to move away from the social class studies of the past. A need for this has been made apparent by Littman and his associates[2] who have reported that a comparison of three studies of child-rearing differences in as many communities pointed "quite clearly to the absence of any general or profound differences in socialization practices as a function of social class."

However, it is also important to keep in mind that studies done, as was that of Miller and Swanson, on the basis of survey techniques—in which the children themselves are not observed or studied—raise considerable questions as to the significance of the results. It is easy to lose sight of the fact that the basic purpose of studying child-rearing practices is to answer the question: What differences, if any, do specific practices make in the child's current and long-term behavior?

Studying the parents as such is of interest and may contribute to an understanding of our broader society; but the "proof of the pudding" lies in determining whether or not these differences are of real import. Thus, the next step is to study children in relation to the differences observed among their parents. In other words, we still must validate the basic hypothesis that differences in child-rearing practices among any kinds of groups result in differences in their offspring.

## *References*

1. Miller, Daniel R.; Swanson, Guy E.: The changing American parent; a study in the Detroit area. John Wiley & Sons, New York, 1958. $6.50. 302 pp.
2. Littman, Richard A., et al.: Social class differences in child rearing: a third community for comparison with Chicago and Newton. *American Sociological Review*, December 1957.

# Marriages decrease again*

In 1958, as in the year before, the number of marriages in the United States decreased by about 4 percent. There were approximately 1,456,000 marriages during the year, compared with 1,518,000 in 1957 and 1,585,000 in 1956. The marriage rate in 1958 was 8.4 per 1,000 population (including the Armed Forces overseas)—the lowest recorded since 1932.

The decrease in marriages, measured from the level of a year earlier, was most marked for the period from September 1957 through March 1958. During these seven months—apparently as a result of the business recession—marriages averaged one tenth below the number in the corresponding months of the year before. Although the number of weddings remained below the 1957 level throughout 1958, the disparity lessened after the early months and was virtually wiped out by the end of the year. Marriages may be expected to rebound soon to their pre-recession level. Data available thus far in 1959 indicate a small increase over the like period of 1958. Moreover, with the forthcoming rise in the number of persons attaining adult age, the annual number of marriages should climb rapidly after the early 1960's and remain at high levels for many years thereafter.

The trend of marriages from 1957 to 1958 showed wide geographic variations. Marriages decreased in 26 States and increased in 22 States and the District of Columbia. The largest drop occurred in Indiana, where a waiting period has been required since January 1958. Largely as a result of that requirement, the number of marriages fell 45 percent—from 74,891 in 1957 to 41,226 in 1958. Almost as pronounced was the decrease recorded in Mississippi, where the age for marriage was raised on July 1, 1958. In the six months before the new law was in effect marriages were off by only one eighth, compared with the first half of 1957, but in the latter half of the year their number was slashed by about two thirds.

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, May 1959.

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In contrast to the national pattern, gains ranging from 10 to 23 percent were reported in five States, namely, Alabama, Kentucky, Arkansas, Tennessee, and Ohio. The upswing in each of these States was associated with changes in marriage regulations in neighboring States. In Arkansas, the rise reversed a downward trend which had continued without interruption since 1951. The records for two other States also merit attention. In Oklahoma, marriages increased by more than 9 percent, continuing an uptrend which started in 1952; in Florida, marriages rose for the sixth consecutive year.

Most cities with at least 100,000 population reported fewer marriages in 1958 than in the preceding year. However, the decline for the group was only about 2 percent, or one half that for the country as a whole. Sixty-seven of the urban areas, or almost two thirds of the total, recorded decreases. The declines were most pronounced in three cities in Indiana, namely, Evansville (25 percent), South Bend (18 percent), and Gary (17 percent). Marriages also fell off by more than 12 percent in Shreveport and Hartford.

Among the cities with at least 1,000,000 population, Los Angeles alone showed no change. In New York City, marriages dropped by 3 percent—from 69,498 in 1957 to 67,594 in 1958. The declines were as much as 4 percent in Chicago and Philadelphia, and almost 7 percent in Detroit.

Inasmuch as Alaska and Hawaii had not yet attained Statehood in 1958, their record has not been included with that for the United States as a whole. Data available from the National Office of Vital Statistics show that the two areas experienced contrasting trends. In Alaska, the number of marriages increased by 3 percent between 1957 and 1958—from 1,686 to 1,739, whereas in Hawaii the number fell 3 percent—from 4,897 to 4,738.

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*Walsh McDermott, M.D.*†

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When the Cornell University Medical College opened for the new term in the fall of 1958, I happened to draw the assignment of discussing the first case at the clinical-pathological conference. The case record started off as follows:

A 43-year-old white Italian stock clerk was admitted to the New York Hospital-Cornell Medical Center for the first time June 4, 1957, complaining of swelling and tenderness of the right shoulder of 12 weeks' duration.

The patient was in good health until 3 months prior to admission when he noted the onset of swelling of the right arm

*Reprinted from *Public Health Reports*, June 1959.

†Dr. McDermott, who is Livingston Farrand Professor of public health and preventive medicine at Cornell University Medical College, delivered the Dyer Lecture on December 16, 1958, at the National Institutes of Health, Public Health Service. A leading investigator in the field of infectious diseases, he has authored a large number of articles for scientific journals and contributed to medical classics on chemotherapy, pneumonia, and syphilis. He has also held posts of distinction on advisory and study panels of the Public Health Service.

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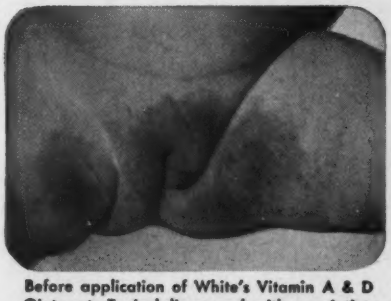

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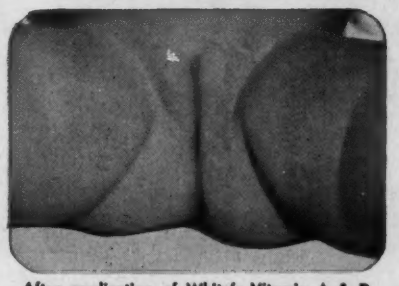

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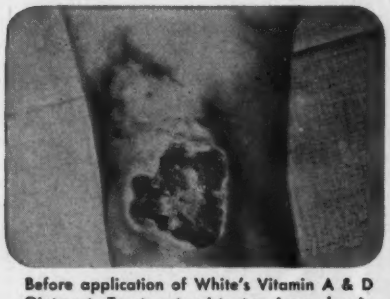

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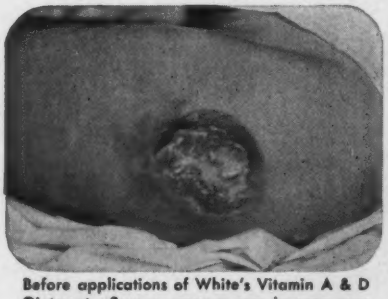

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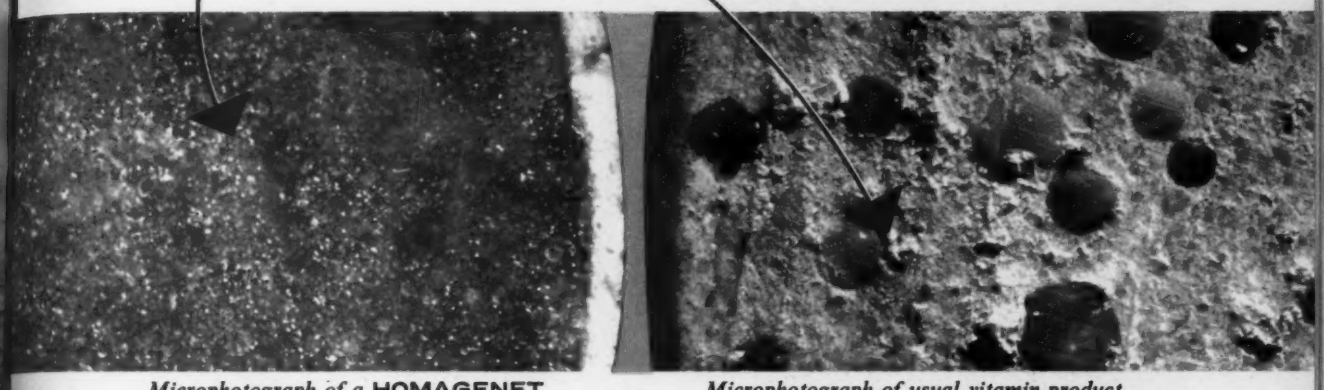

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1. Lewis, J.M., et al.: J. Pediatrics, *31*:496

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from shoulder to wrist. This was shortly followed by fever and night sweats. Eight weeks prior to admission the right arm became painful. Shortly thereafter the skin over the right elbow became red and warm and the swelling increased. Despite initial improvement with corticotropin, steroids, and physical therapy, the discomfort in the right arm increased and admission was advised. A firm small right supraclavicular mass had been present for about 18 months. He had had an episode of "dry" pleurisy at age 21. One brother was known to have multiple cutaneous lipomata.

Physical examination revealed a well-developed, well-nourished white male who appeared neither acutely nor chronically ill. . . .

I shall omit the detailed presentation of the remainder of the findings in this case. I simply wish to call your attention that the man was 43 years old, had considered himself to be perfectly well until 3 months previously, and on physical examination had appeared neither acutely nor chronically ill.

### REVIVAL OF MICROBIAL SLUMBERERS

During the next 7 months this man had many trials and tribulations including such things as widespread tuberculosis of lymph nodes and lymphosarcoma. His multiple serious ailments were all brought under excellent control by the careful and wisely chosen application of some of the wonders of modern medical science. Indeed, he attained a symptom-free state and was able to leave the hospital for a short period. Nevertheless, this gallant patient and his most dedicated physicians were finally conquered by his developing an infection with *Monilia albicans,* a common microbe that characteristically lives harmlessly in man.

Presumably, when the patient was born he was not carrying *Monilia* but neither is there any reason to believe that he "caught" the monilial infection in the weeks preceding his death. In all probability, throughout most of his adult life the microbes of *Monilia* were living quietly somewhere in his tissues. This was presumably the case whether or not by our relatively crude diagnostic methods it would have been possible to detect them there amid the welter of other microbes for which he played the host. The point that concerns us is the fact that from this welter of other micro-organisms it was this particular one, *Monilia,* that found the environmental conditions for arising and conquering. In short: Why *Monilia?*

Let us now turn from the bedside to the laboratory and regard other examples of infection. Some 7 or 8 years ago, as was correctly fashionable at the time, we were engaged in our laboratory in studying the influence of cortisone and corticotropin on infections, notably experimental infections with tubercle bacilli.

In one part of these studies, LeMaistre and Tompsett chose a model consisting of avian tubercle bacilli and the rat, in order to have an infection that was generally mild in character.[1] The avian tubercle bacilli could be recovered by culture of these tissues.

The initial inference was the natural one that a characteristically mild tuberculous infection had been enhanced to the point of fulminating caseonecrotic disease by the influence of the cortisone. On more careful study, however, it was revealed that the avian tubercle bacilli had nothing to do with these caseonecrotic lesions. Instead, it was found that the entire process was a disease known as pseudotuberculosis produced by quite a different microbe, *Corynebacterium pseudotuberculosis muris.*

In the absence of cortisone, the members of the rat colony uniformly showed a high degree of natural resistance to the corynebacteria when attempts were made to infect them by various routes. For this and other reasons it seemed wholly improbable that the corynebacterial infection in the animals given cortisone represented a cross-infection occurring after the start of the cortisone. Despite careful and detailed investigation, however, it was not possible to demonstrate that the rats were already harboring the corynebacteria at the time they received the cortisone.

In other words, by the use of all available diagnostic methods it was not possible to detect the presence of corynebacteria in the tissues of the rats. Yet the evidence was quite convincing that the corynebacteria in fact were there; it was just not possible to demonstrate that they were there. Once the rats received corti-

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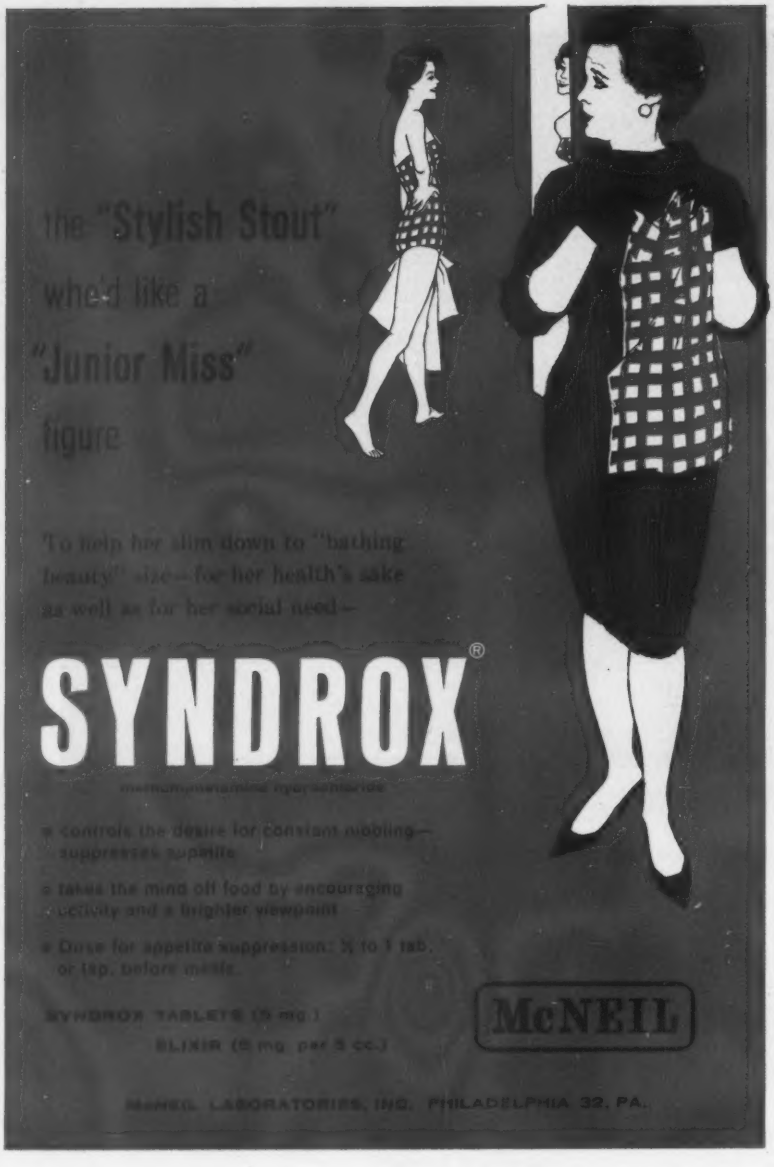
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sone, this infection—that could not be introduced experimentally from the outside—exploded "from the inside," so to speak, and formed a tissue-destroying and eventually fatal disease.

The question arises as to whether it was the presence of the latent corynebacterial infection or the absence of the appropriate tissue environment that created the host resistance against our attempts at experimental infection. In any case, once the cortisone influence was established, it was the corynebacteria, and not any of the other microbial species residing in the rats, that were resurrected to the production of destructive disease. Once again we may well inquire: Why *Corynebacterium?*

In this particular case we do have a little more of a lead from studies, some by LeMaistre and others and some by György and by Zucker and their associates in the precortisone era.[2,3] These studies have shown that certain specific dietary deficiencies can provide the appropriate environment for the resurrection of *Corynebacterium* in the tissues. In short, we have a glimpse here of the sort of specificity that we sense must be present in these microbial adaptations to their environment.

## RETREAT INTO LATENCY

The two examples cited thus far have been concerned with one end of a phenomenon; the apparent resurrection of a microbial slumberer that is then able to surpass its fellow competitors so successfully that it finally overcomes its host. Let us turn now to what might be viewed as the other end of the phenomenon, namely, how a microbe that is surrounded by a tissue environment wholly appropriate for its flowering as disease nevertheless assumes the latent state. How does the microbe that is living openly in the host "go underground?" Or, more precisely, can either the microbe or the ideal tissue environment be artificially modified so that microbial latency is the outcome?

An approach here that immediately comes to mind is to modify the tissue environment by infiltrating it with one or more antimicrobial drugs. For the past 15 years or so our group at Cornell has been attempting to do just this. And, I can say that we have found only one situation in which it has been possible regularly to make an infection vanish from the tissues.

In all other situations with a variety of microbial species and a large number of antimicrobial drugs, the most that it has been possible to do is to keep an infection suppressed at very low but detectable levels in the tissues. The one exception has to do with tubercle bacilli of human origin and a derivative of the nicotinamide series known as pyrazinamide.

When tubercle bacilli subsisting in the tissues of the mouse are simultaneously exposed to pyrazinamide and another antituberculous drug for an appropriate period, all of the tubercle bacilli vanish from the tissues of the animals. By "vanish" is meant that the presence of tubercle bacilli in the animal tissues can no longer be demonstrated by the most elaborate techniques of microscopy, culture, or animal inoculation. The administration of pyrazinamide alone will likewise cause the tubercle bacilli to vanish if they have just previously been exposed to isoniazid for an appropriate period. When the pyrazinamide is administered entirely alone, that is, without either prior or concomitant administration of another drug, the vanishing phenomenon does not occur, and the effects of pyrazinamide seem to be of the same type as those of other antituberculous drugs, notably isoniazid. In the last-named circumstances, the populations of tubercle bacilli in the animal tissues steadily fall during the early weeks of chemotherapy and then stabilize at a low census at which they persist throughout many months of continued chemotherapy. These two phenomena, the vanishing of "drug-influenced" tubercle bacilli when exposed to pyrazinamide and the persistence of tubercle bacilli when exposed to isoniazid or to pyrazinamide alone, have been demonstrated experimentally many times.

In actuality, the vanishing of the bacilli does not represent their complete elimination from the tissues of all the animals. When a 90-day period of pyrazinamide-isoniazid administration was followed by a 90-day treatment-free interval, the bacilli reappeared in approximately one-third of the animals. In these animals, therefore, a truly latent infection had been induced with spontaneous resurrec-

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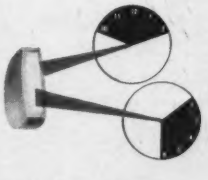

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tion after a drug-free interval of 60 to 90 days. Whether the other animals that showed no microbial revival in the 90-day period of observation also had latent infection cannot be stated, but we believe it to be the case.

There are obvious parallels between this artificially induced latent infection with tubercle bacilli and the latent monilial and corynebacterial infections of the man and the rats. In all three cases there was a stage at which there is every reason to believe that the microbes were present in the tissues, yet not the slightest trace of their presence there could be detected. In all three cases the resurrection from the latent state did not occur until the tissue environment, the external environment of the microbe, had undergone some modification. With the corynebacterial infection of the rats, the change in the nature of the environment provided by the tissue represented some consequence of cortisone.

With the fatal monilial infection of the man, the nature of the environmental change in the tissues is not clear, but the various microbial species in natural competition with *Monilia* had been suppressed and cortisone had also been given. With the infection made latent artificially, the usual environment provided for the tubercle bacilli by the tissues of the mouse was obviously perfectly suitable for the full expression of the microbes. Consequently, for microbial resurrection no tissue modification was necessary other than to free the environment of the pyrazinamide.

The two examples of "naturally" occurring inapparent infection that have been chosen were simply those most readily at hand and represent the expression of the phenomenon by a fungus and by a bacterium. A familiar example of inapparent infection with a virus is provided by the commonplace happening of the breaking out of cold sores around the lips caused by resurrection of the virus of herpes simplex. In an infected person, this event will occur predictably when the environment provided for the virus by the tissues has been modified by such factors as fever, excessive sunlight, digestive upsets, or menstruation. As techniques for tissue culture have been developed it has become clear that the cells employed are not infrequently the site of an inapparent infection. Another case in point is the activation of an inapparent viral infection of bacteria, a bacteriophage, by appropriate change in the environment, with resultant destruction of the bacteria. Thus it is becoming increasingly recognized that inapparent infection is a broad biological phenomenon involving all sorts of microbes and every sort of host including man, lower animals, plants, and even the microbes themselves.

In the present discussion no attempt will be made to cover this field throughout its entire breadth. Dubos has a recent publication on latent infection,[8] and one of his associates, Dr. Harold Simon, has virtually completed a comprehensive review of the subject which is scheduled to appear as a monograph in the latter half of 1959. Consequently, in the following discussion, attention is limited to the phenomenon of inapparent infection as it applies to bacteria and fungi because here, with antimicrobial drugs, it is possible to manipulate inapparent infections and to draw certain relatively elementary inferences concerning their nature.

## THE DORMANT STATE

Thus far, the discussion of inapparent infections has centered around latent infections. It seems to me that a latent infection can be regarded as an extreme form of microbial adaptation. For, inapparent infection can exist and eventually give rise to serious disease without the microbes ever having assumed a truly latent form. In a sense, this is merely semantics, but I have found it helpful to follow the practice of subdividing infections into those which are latent and those which are dormant.

The term "latent infection" is reserved for situations in which the presence of the microbes cannot be demonstrated by any method now available and the fact that infection is present can only be demonstrated in retrospect by the emergence of overt disease (usually as a relapse).

A dormant infection is one in which the presence of microbes can be easily demonstrated but they are not producing disease. In a dormant infection, the micro-organisms may be living openly as the so-called commensals in the respira-

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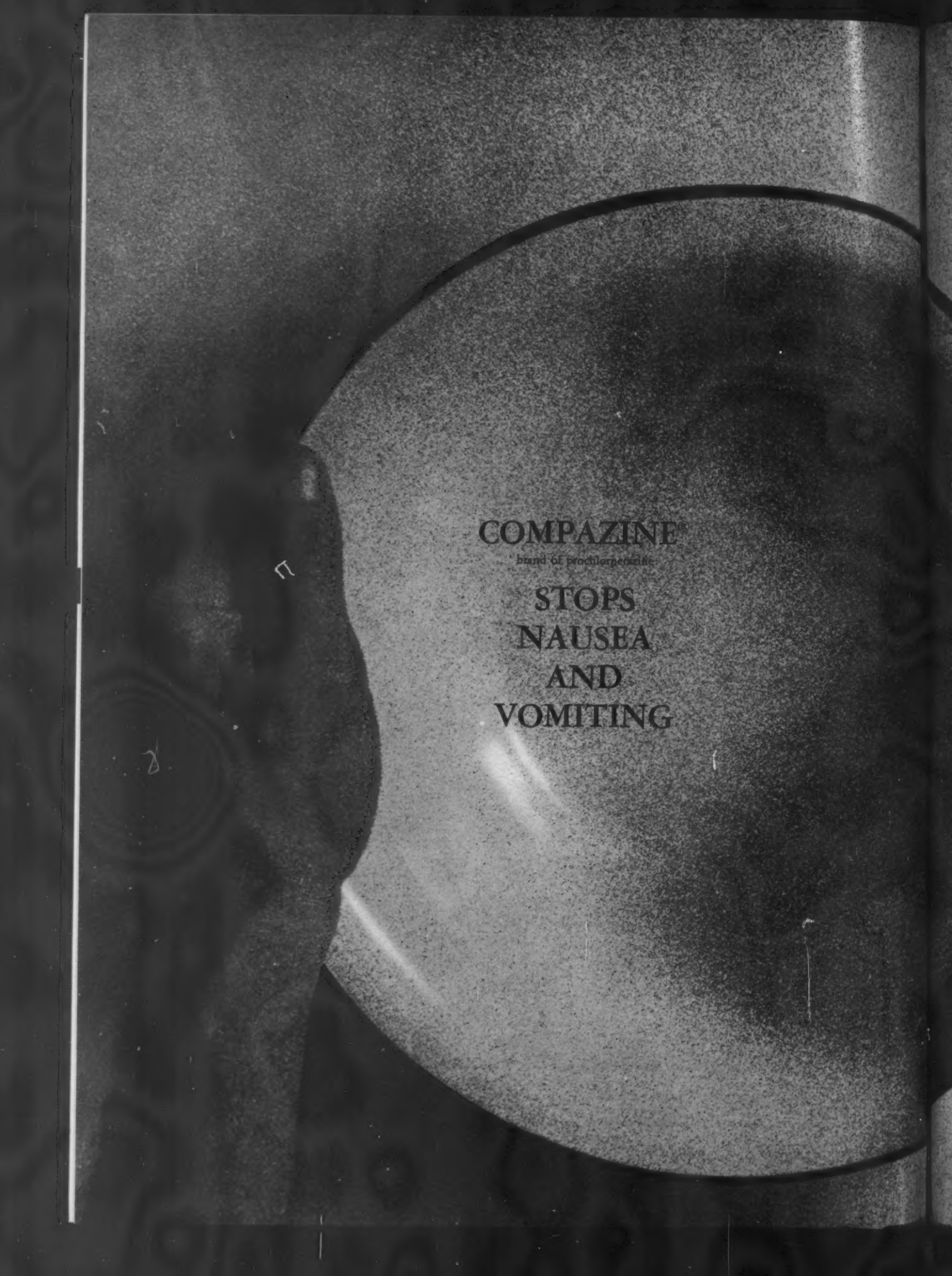
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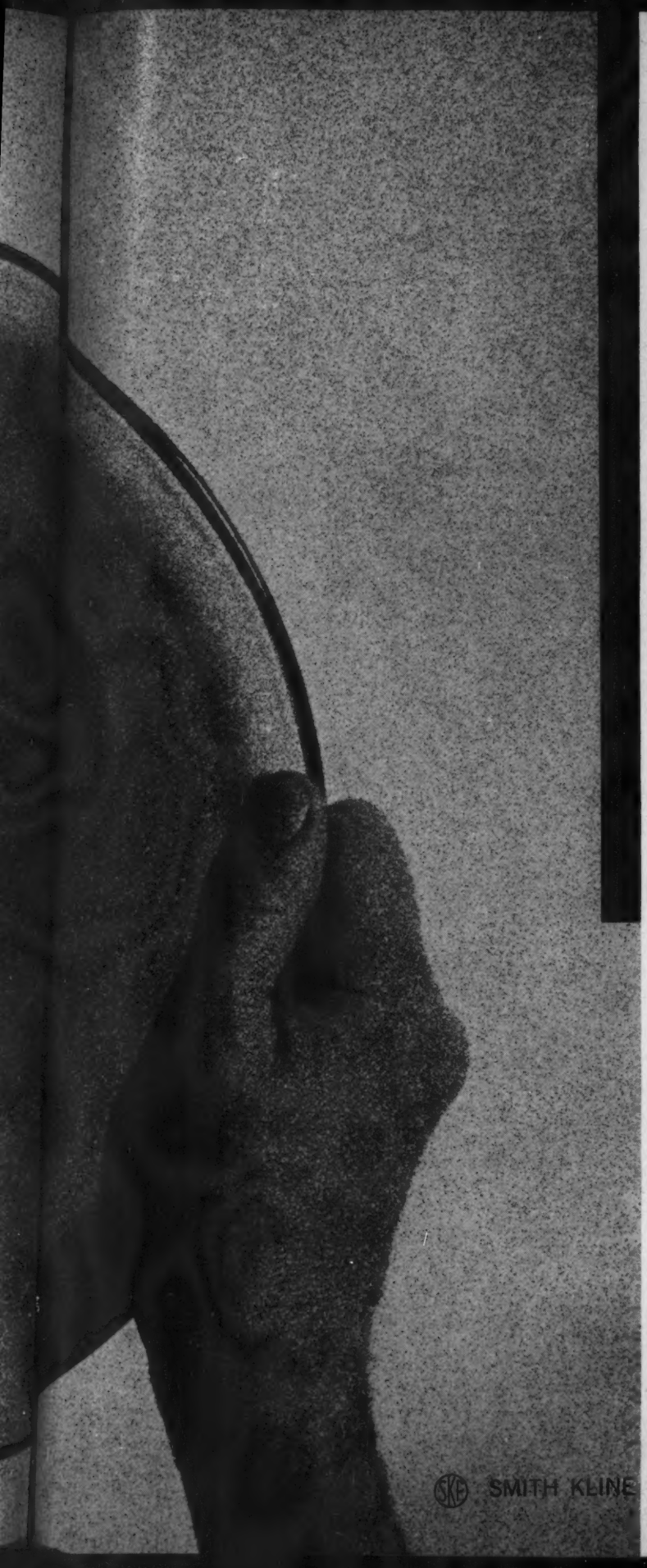

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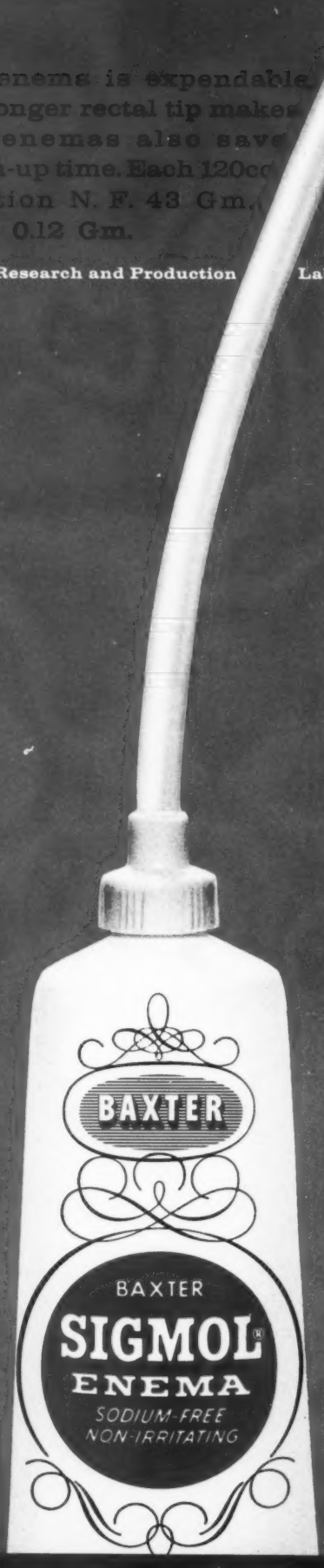

tory or enteric flora or less obviously in the healed lesions of previous disease as in those of the tuberculin reactor and probably also the typhoid carrier.

As we view things today, the emergence from inapparent infection to openly progressive disease occurs far more frequently with dormant infections than it does with latent infections. This could change, however, and especially what could change are our techniques for detecting the presence of latent infections.

## THE ANTIMICROBIAL DRUG

In attempting to analyze the phenomenon of microbial persistence it has seemed to me that there are five possibilities that merit consideration:

The first two are the possibilities that drug resistance of the genotypic form or inadequate drug dosage might be responsible. These can be dismissed from further consideration by virtue of the fact that experiments designed to test these possibilities have shown that they do not apply. Likewise a third possibility that microbial persistence is a result of a failure of the delivery of the drug to the parasite because of impenetrable barriers by abscess walls, fibrin membranes, or areas of necrosis can also be dismissed on the basis of appropriate experiments conducted both in our own laboratory and elsewhere.

One aspect of this barrier question does deserve special mention, however, and that is the effectiveness of intracellular residence as a sanctuary from drugs present in the intracellular fluid.

We are accustomed to hear the statement that such and such an antimicrobial drug "does not penetrate the monocyte" or some other type of cell. It is not generally realized that the type of experiment cited is not usually designed to measure whether the drug is or is not transferred across the cell boundary. Instead what is actually shown in most such experiments is that a particular microbial species, when situated within a cell, is less susceptible to a particular drug introduced into the extracellular environment than is the case when both the microbe and the drug are allowed to come together outside the cell.

In short what one observes is that microbes within cells are less drug susceptible than microbes outside cells; what one *infers* is that the drug was not transferred into the cell.

In reality, in the few cases in which the actual transfer of a drug has been measured, such as in Eagle's careful studies with isotopically labeled penicillin at the National Institutes of Health,[7] it is found that quite substantial quantities of drug are transferred. Indeed, the quantities of penicillin transferred are more than sufficient to exert full effectiveness, so when the intracellular microbes are not fully susceptible, and sometimes they are not, some other explanation must be found.

From Eagle's studies on penicillin transfer and from some observations on penicillin-staphylococcus-leucocyte systems by Tompsett,[8] it does not appear that the persistence of a minority of the intracellular staphylococci is due to a failure in drug delivery. Instead, the persistence within the phagocyte seems to be merely a replica in miniature of microbial persistence in the body as a whole.

The fourth possibility is that the environment of the inflammatory lesion exerts an antagonistic influence on the activity of the antimicrobial drug.

Although in the past I have done as much as anyone to promulgate this concept, I no longer believe it will stand up to critical scrutiny.[9] It is easy to show that environmental changes result in changes in drug effectiveness. This is particularly striking in the fact that the same microbial species situated in the different organs of the same animal show widely different susceptibility to the same drug. For example, tubercle bacilli in the lung of the mouse are far more susceptible to isoniazid than tubercle bacilli in the spleen. Moreover, tubercle bacilli in the spleen are far less susceptible to streptomycin than the staphylococci in the spleen of the same animal species.

When tested in conventional circumstances in vitro, tubercle bacilli are quite unaffected by pyrazinamide. When the environment of the bacilli is altered, however, either by making it more acidic or by situating the bacilli within monocytes, tubercle bacilli of human (but not bovine) origin become highly susceptible to pyrazinamide. A recent report by Williamson[10] shows that a change from an anaerobic to an aerobic environment dou-

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bles the effectiveness of dihydrostreptomycin on *Escherichia coli* over a wide range of pH. By contrast, with *Aerobacter aerogenes,* the enhanced drug activity in the aerobic environment occurs only at pH 7 or above. Since in both sets of circumstances the drug is the same, the effect of the environmental change on drug influence must be something directly related to the parasite and not a direct environmental antagonism of the drug.

Thus a number of examples exist wherein a change in environment has been accompanied by a change in drug effectiveness. In each case, however, the result could equally well have represented an influence of the environment on the parasite. Some of the examples of environmental influence, moreover, represent influences that could only have been exerted on the parasite. In view of these considerations together with the fact that a large excess of drug should usually be present in the lesion, it appears that environmental antagonisms of drug activity may well occur, but that seldom, if ever, should it attain a magnitude that would provide a satisfactory explanation for the phenomenon of microbial persistence.

### THE STATE OF DRUG INDIFFERENCE

The fifth possibility is the one that in my opinion fits the evidence. In brief, the concept is that microbial persistence is the result of the ability of microbial populations to assume a state in which they are neither permanently incapacitated by the drug nor do they multiply freely in its presence as do the genetically drug-resistant microbes.

I have designated this state, which can be demonstrated in vitro and in vivo, as "drug indifference."

The concept of drug indifference does not imply marked suppression of all metabolic functions of a microbe but merely those related to a particular drug. The metabolic functions do not necessarily continue throughout the life of the microbe but might have to do exclusively with activities of its early youth, for example, cell-wall synthesis. In such a case, the newborn microbe might resemble a protoplast with its capacity to carry on metabolic functions including limited cell division but without the capacity to multiply freely.[6,23]

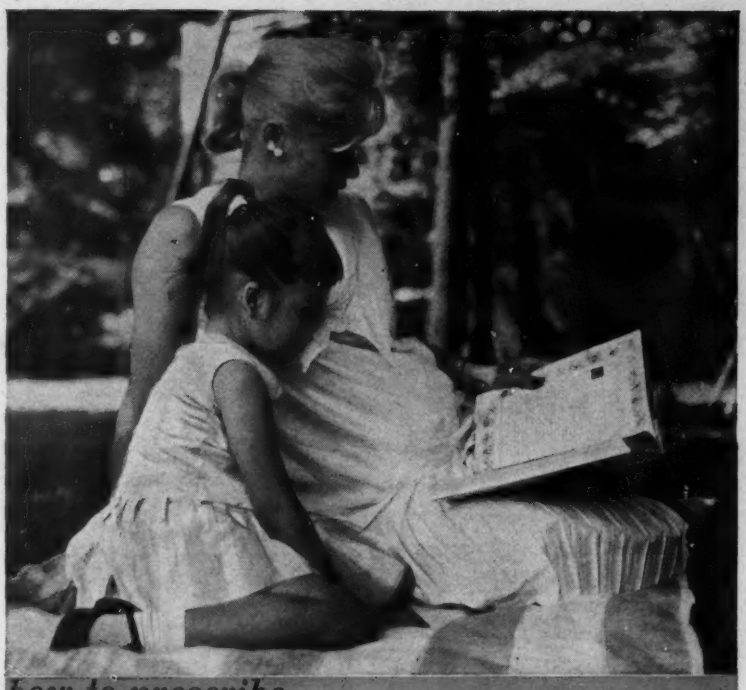
It is believed that the assumption of this state of drug indifference is induced or favored by the influence of the environment on the microbe. Included in these environmental influences are other antimicrobial drugs and intermicrobial relationships as well as the influences of the cellular and humoral defense reactions of the host and the reactions of inflammation. An environmental change of a particular sort may make the same parasite display widely different behavior to different drugs or may make different parasites display less than their maximal susceptibility to the same drug. For these reasons it is believed that it is the adaptive plasticity of the microbe that is the important factor in the influence of environment on drug effectiveness and not a chemical or physical antagonism exerted directly by the environment on the drug.

Expressed differently, pus does not neutralize drug activity, but in adapting to a necrotic environment a microbe may become less susceptible to a drug. Although instances of drug enhancement from environmental adaptation of the microbes do occur, thus far they have not been observed to lead to total eradication of a microbial population. Consequently, the net overall effect of the various environmental influences on drug effectiveness is in the direction of providing situations that favor microbial persistence.

Presumably this state, or these states, of drug indifference closely resemble, perhaps are identical fo, the microbial states associated with latent or with dormant infections. Thus in concept, if not in actuality, microbial persistence may be regarded as merely the induction of the latent or the dormant microbial state by drugs.

### THE PARASITE'S MORPHOLOGICAL CHANGES

Consideration of the phenomenon of microbes in the latent or in the dormant state naturally gives rise to speculation on the possible nature of such states. This is particularly the case with the latent state because the question immediately arises as to the form that could be assumed by the tubercle bacilli or the corynebacteria so that they might be able to exist in the tissues without our being able to find them.

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In the first place, it must be recognized that our methods for microbial detection are so relatively crude that the microbes need not change their form in order to "vanish" completely. All that would be necessary would be for the microbes to lose the ability to grow on our artificial culture media. A population of tubercle bacilli, for example, must be quite large before it is readily detectable by direct microscopy so that if it had lost its ability to adapt to artificial media, it would be undetectable.

In recent years the concept that microbes might possibly exist in more than one form has become respectable, almost fashionable. Moreover, with full realization that our inability to detect microbes during latency may simply reflect the crudity of our diagnostic methods, there remain, nevertheless, certain features of latency that suggest a major change in the form of the microbe.

The principal feature has to do with the time sequences involved in the pyrazinamide-induced latent tuberculous infection. For the uniform induction of latency, a total period of 12 weeks of chemotherapy was required. The pyrazinamide and companion drug could be administered together for the entire 12-week period or 4 weeks of treatment with isoniazid followed by 8 weeks of pyrazinamide could also suffice. But variations of these time-dose relationships, keeping the 12-week period constant, would not suffice. For example, merely reversing the order in which the two drugs were given in the sequential experiments or reducing the initial isoniazid therapy to 2 weeks instead of 4 weeks would result in failure to induce latency. Obviously, a number of inferences are possible from these observations, but the relative precision of the time-dose requirements suggests the operation of some process that requires considerable time.

The resurrection of the tubercle bacilli from the latent state likewise required a considerable period. It must be remembered moreover, that the tissue environment in which the resurrection occurs is presumably quite favorable for the proliferation of the tubercle bacilli. Yet in the animals in which the bacilli reappear after a 90-day treatment-free interval, it has not been possible to demonstrate their presence at the 30-day or the 60-day observation point. Even when sufficient cortisone is given to evoke other microbes during the first 30 days after therapy, no resurgence of the tubercle bacilli has been demonstrated.

This appreciable delay in the reappearance of the tubercle bacilli in an apparently favorable environment and our inability as yet to hasten the process by artificial "stresses" suggest that a significant modification of the parasite was necessary before resurrection could occur. In other words, the time relations suggest that the microbial adaptation represented by the latent state of tubercle bacilli is not something that is rapidly responsive to transient fluctuations in the status of the host defenses. By contrast, resurrection of tubercle bacilli from the dormant state can occur with rapidity. The speed with which resurrection from the latent state (as contrasted with awakening from the dormant state) occurs might vary considerably among the microbial species and might likewise depend, to some extent, on the rapidity with which the appropriate environmental alterations could be accomplished.

What could be the nature of a morphological change that might accompany the physiological state of latency? Certain studies of this general subject of the existence of other forms of well-known microbes have employed antimicrobial drugs, notably penicillin, to induce the novel microbial forms. This was the case with the minute colonial forms of staphylococci, the so-called dwarf forms, and more recently with the studies of L-forms and bacterial protoplasts.

When the outer, rigid wall of a bacterial cell is removed under appropriate conditions (or its synthesis prevented), the bacterial cytoplasm and its cytoplastic membrane may continue to exist. This surviving unit is known as the protoplast. The protoplast can carry on many, perhaps all, of the metabolic functions of the original cell except cell-wall synthesis.

It is the process of cell-wall synthesis that appears to represent the site of action of penicillin and the protoplasts of penicillin-susceptible microbes are unaffected by penicillin. The protoplasts also appear to possess the capacity to multiply

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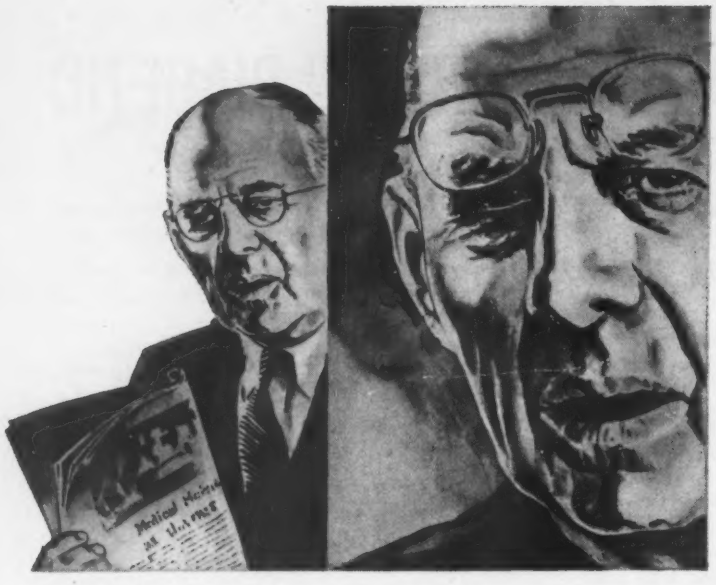
1. Greenhouse, B.: Ann. New York Acad. Sc. 74:643, 1959. 2. Dobson, H., et al.: Ibid., p. 940. 3. Forsham, P. H.; Magid, G. J., and Dorosin, D. E.: Ibid., p. 672. 4. Beaser, S. B.: Ibid., p. 701; New England J. Med. 259:573, 1958. 5. Blöch, J., and Lenhardt, A.: Ann. New York Acad. Sc. 74:954, 1959. 6. O'Driscoll, B. J.: Lancet 2:749, 1958. 7. Hadley, W. B.; Khachadurian, A., and Marble, A.: Ann. New York Acad. Sc. 74:621, 1959. 8. Duncan, G. G.; Schless, G. L., and Demeshkieh, M. M. A.: Ibid., p. 717. 9. Handelsman, M. B.; Levitt, L., and Calabretta, M. F.: Ibid., p. 632. 10. Hills, A. G., and Abelove, W. A.: Ibid., p. 845. 11. Drey, N. W., et al.: Ibid., p. 962.



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but to what extent such newborn protoplasts can survive is not yet established. These minute "peeled grapes," so-to-speak, are quite fragile and are especially susceptible to oxygen and to changes in the osmolarity of the environment.

There is some reason to believe that all protoplasts from the same microbial species are not alike. Consequently, Weibull, who is one of the outstanding investigators in this field, believes it is valuable to distinguish between true protoplasts in which no trace of the outer cell wall remains, and "protoplasts" or protoplast-like structures to which some fragment of a cell wall may remain. Weibull regards true protoplast formation as being something that has been clearly demonstrated for only a few microbial species and the protoplast-like phenomenon as being something more common.

In any case, the literature today contains a number of reports of observed "protoplast" formation among such micro-organisms as staphylococci, tubercle bacilli, enterococci, and many others. Moreover, a number of workers have come to regard the process of protoplast formation as being identical with what happens in the first stage of the formation of the L-form from the normal vegetative form of certain bacteria.

Despite their fragility, protoplasts can survive in vitro with appropriate manipulations of the environment. Moreover, if L-forms are protoplasts or protoplast-like structures, they would represent one form that survives in vitro where indeed the osmotic homeostasis might be expected to be more protective.

Wittler and associates in Washington have shown that the L-form of corynebacteria can be converted to the familiar vegetative form in HeLa cells by appropriate changes in the environment of the host cells.[13] Wittler has also shown the same phenomenon for *Haemophilus pertussis* in mouse tissues.[13]

Thus there is accumulating quite a respectable body of evidence to the effect that many microbial species are capable of responding to environmental change by assuming quite a different form and that this may occur within the animal body. It is of interest that the corynebacteria and mycobacteria involved in the two latent infections I have been using as illustrations are included in the list of organisms that can assume a protoplastlike form. Moreover, it is especially relevant to the present discussion to note that for some microbial species protoplast formation can be regularly induced by appropriate exposure to penicillin. The protoplasts so induced are not destroyed by penicillin, and when the penicillin is removed from the environment the protoplasts revert to the vegetative (and penicillin-susceptible) form of the microbe.

Obviously, it would be intriguing to attempt to study the pyrazinamide-tubercle bacillus relationship from the standpoint of protoplast formation especially in view of the long period necessary for microbial resurrection in the tissues.

As mentioned previously, however, we must keep constantly in mind the fact that our detection techniques for the customary forms of bacteria are so relatively crude that nonculturable but morphologically typical microbes could survive undetected in the tissues.

It might well be questioned whether there is any value in attempting to divide inapparent infections into those which are dormant and those which are latent on so artificial a basis as the ability or inability to detect the infective agent at a particular point in time. As long as this contrivance does not make us prisoners of our thinking, I believe it serves a useful purpose at this time when our knowledge is so elementary. For, the distinction keeps open the prospect that in a latent infection the microbe may be structurally and functionally in a state quite different from the microbe of overt disease or the carrier state. Along with this goes the corollary possibility that in the phenomenon of resurrection from latency to overt disease, the activation of complicated mechanisms within the parasite may be as essential as the appropriate changes in the environment provided by the host. By contrast, with a dormant infection all that may be necessary is a lapse in host defenses for the infection to become disease.

## MICROBIAL PERSISTENCE

Let us return now to consideration of experimentally induced latent and dormant infections in laboratory animals.

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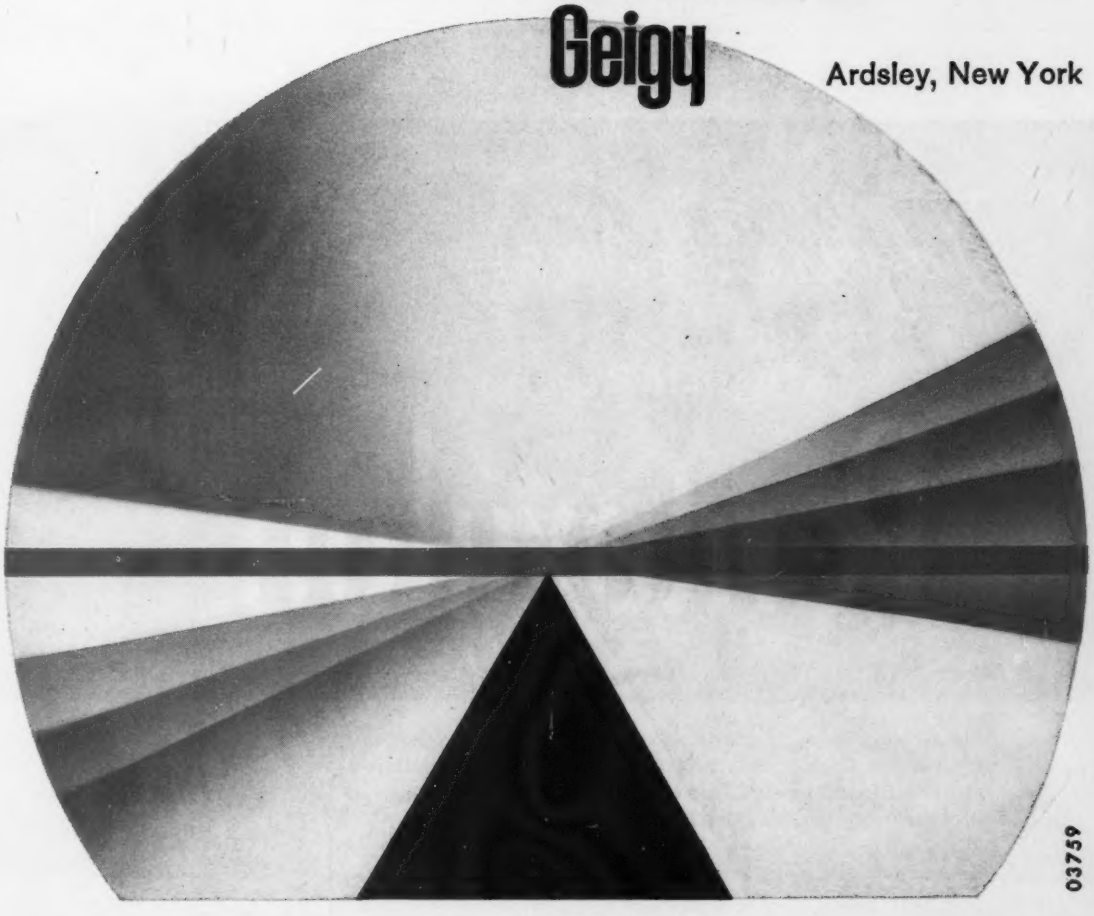

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As you will recall it was emphasized that the vanishing of the drug-influenced tubercle bacilli when they were subsequently or concurrently exposed to pyrazinamide in the tissues represented the only instance in our experience in which a microbe became truly latent as a consequence of chemotherapy. This experience includes studies with staphylococci, streptococci, *Klebsiella,* and *Brucella* as well as tubercle bacilli, and it includes all of the available antimicrobial drugs. In the case of tubercle bacilli alone, some 13 drugs with demonstrable antituberculous activity have been studied when administered singly and in various multiple drug regimens. With two compounds, a thioamide of nicotinic acid and streptovaricin, results approaching those of the pyrazinamide phenomenon were noted, but true latency could never be produced with uniformity throughout all the animals studied.

Obviously, tubercle bacilli possess the equipment to assume the latent state, but the process apparently has to be invoked in some highly specific way. Some notion of the degree of specificity that must be involved may be seen from the fact that this capacity of human tubercle bacilli to respond to pyrazinamide by assuming latency is not shared by the very closely related tubercle bacilli of bovine origin. At least one other microbe, *Treponema pallidum,* probably possesses the capacity to assume the latent state both in rabbits and man as a result of drug exposure. This point cannot be established with certainty, however, because of our lack of culture techniques whereby the tissues could be subjected to reasonably searching scrutiny to show the nondetectability of the treponemas during a latent state.

In contrast with the rarity of drug-induced latent infections, the production of dormant infections occurs regularly with all microbes studied when exposed in the tissues to an appropriate antimicrobial drug. Indeed in the experiments with latent tuberculous infections, dormant infections were produced in the groups of animals that received isoniazid or pyrazinamide as single drug therapy. In each case, the populations of tubercle bacilli fell sharply after the start of drug therapy but then stabilized at a low census at which they remained throughout the many weeks of continued therapy.

As mentioned previously, this survival of the microbes in the tissues at a constant low census despite appropriate drug therapy can be shown for a number of microbial species and all available antimicrobial drugs. Indeed this phenomenon, which I like to designate microbial persistence, represents a biological property of very broad but perhaps not unlimited generality. In the treatment of infections in humans, the existence of the phenomenon of microbial persistence need not necessarily lead to therapeutic failure but most failures that occur stem from it. Moreover, in addition to providing the basis for post-treatment relapse, microbial persistence is obviously responsible for the post-treatment carrier state. In short, it is this phenomenon which is responsible for our inability to eradicate an infection uniformly from a group of patients or from a community by the use of drugs.

Our group at Cornell has been specially preoccupied with this phenomenon of microbial persistence ever since early 1946. An extensive review of these studies has been published recently.[6] Accordingly, I shall attempt to present the subject only in sufficient outline to provide a proper basis for a subsequent consideration of latent and dormant infections. In so doing it will be necessary to employ bold assertions at certain points without bringing forward the experimental evidence that has seemed to me to be convincing. This evidence is offered in the published presentation.

In this brief consideration of microbial persistence, we start from the demonstration both in patients and in laboratory animals that microbes that are drug susceptible in the orthodox sense are nevertheless able to survive in the tissues despite the prolonged administration of the

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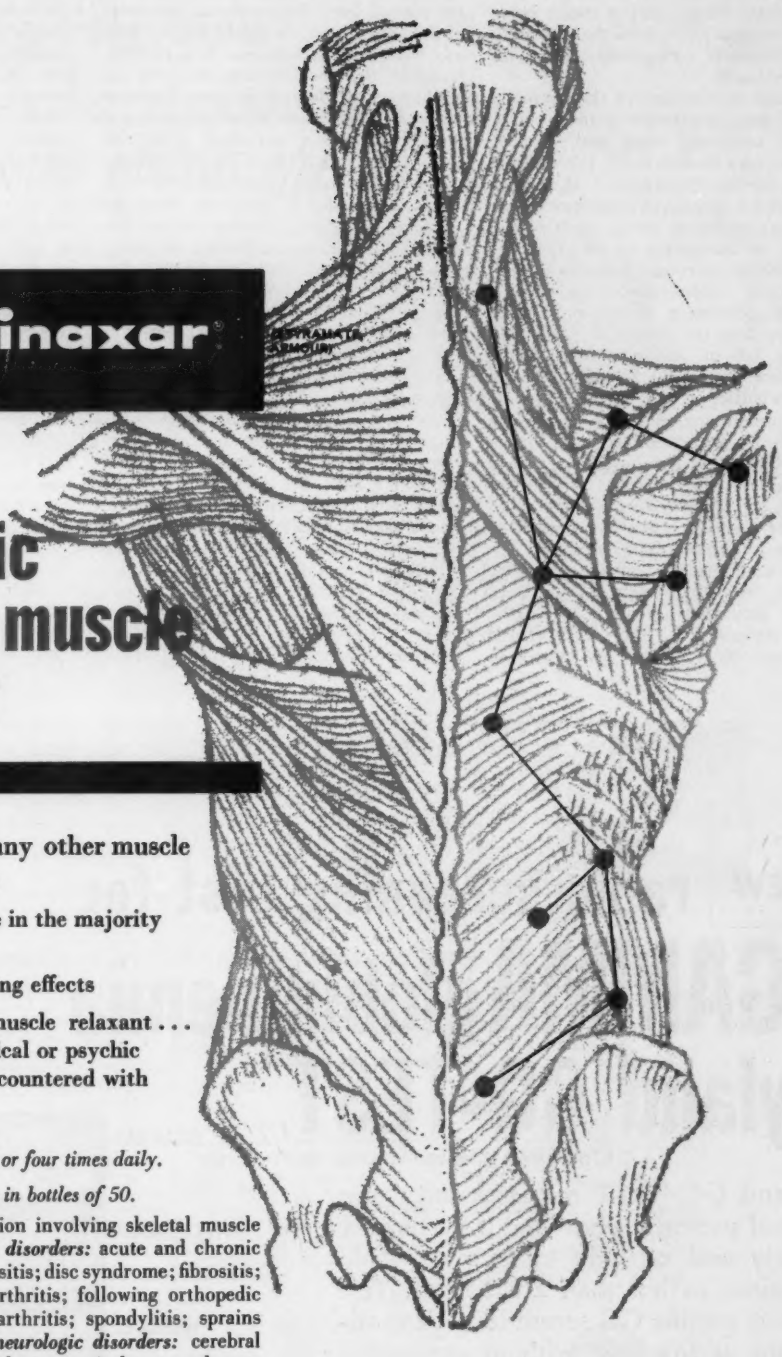

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appropriate antimicrobial therapy. The horizontal trend lines of the census of microbes during therapy are merely one graphic representation of this point. Indeed, about the only situations in which antimicrobial therapy can be totally eradicative in humans are with the relatively fragile *Neisseria* and possibly also with dysentery bacilli.

The close resemblance of the microbial states of drug indifference to those of the naturally occurring latent and dormant infections may be seen in the phenomenon of drug-resistant "persisters." It is quite clear that the general phenomenon of microbial persistence is not a result of the presence or emergence of genotypically drug-resistant microbes. Indeed with the experimental model employed, when a microbial population is resistant to a particular drug the census in the tissues does not fall on administration of the drug. Moreover, when the population is drug susceptible at the beginning but is transformed in the course of therapy to one that is drug resistant, the drug-induced downward trend of the census is reversed and the microbes proliferate freely in spite of the continued administration of the drug. But sometimes this microbial resurgence does not occur. Instead the population that has been markedly reduced by drug therapy (and is now predominantly drug resistant) simply remains at the low census throughout long periods of continued drug therapy. In short, the drug-resistant microbes behave like drug-susceptible persisters.

Unfortunately, it has not been possible to conduct the obvious experiments on the fate of these drug-resistant persisters in the period after the antimicrobial therapy has been discontinued. It is possible, however, that the situation here may resemble the paradoxical situation discussed below in connection with chemoprophylaxis in which a microbial population that is drug indifferent is nevertheless under the continued influence of the drug. What can be said at this point about the resistant persisters, however, is that microbial populations (including the drug-resistant cells) obviously can become dormant or latent within an animal body by processes not necessarily dependent on antimicrobial therapy.

The possible morphological changes in the microbe to go along with the altered metabolic states have been considered in terms of latent rather than dormant infections. The latent state appears to represent a more extreme form of microbial adaptation than the dormant state, and hence it is to the latent state that attention is understandably directed. Obviously, it cannot be stated at this time whether the microbes in a dormant infection have the capacity to assume different morphological states. In contrast with a latent infection, however, there is in a dormant infection no delay or difficulty in cultivating the microbes in their orthodox form.

Before leaving this question of possible morphological changes in the parasite in the tissues, I should like to make a brief comment on the matter of the role of the host in maintaining an infection in the dormant or latent state. Presumably, the host plays an important role here both through the known host mechanisms of defense, by similar mechanisms as yet unrevealed, and by not providing certain types of environment such as those produced in the tissues during starvation or in the cortisone-treated animal. What I would like to point out, however, is that in quite properly focusing our attention on the host in the host-parasite reaction we have tended to regard the parasite as something that is passive and relatively constant in nature whether it is actively producing disease or living quietly in the tissues. In so doing we have tended to regard the difference between the latent and the active stages of an infection as depending almost entirely on the momentary status of the host defenses and have been neglecting the wide range of individual expression possessed by the parasite. It seems quite likely that evocation of an infection from the latent state might require some rather substantial adaptive changes by the parasite and not merely a failure of some defense mechanisms of the host. The difference between a dormant infection such as an arrested tu-


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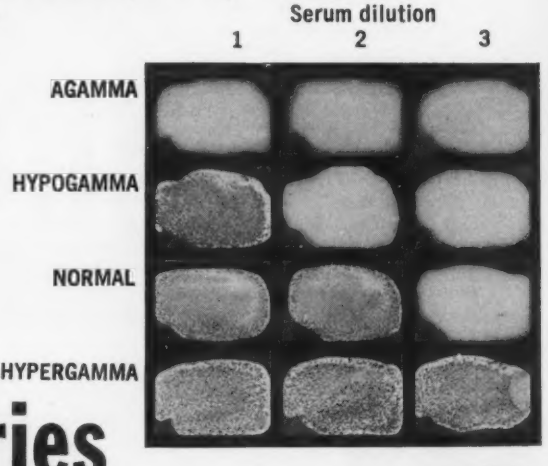


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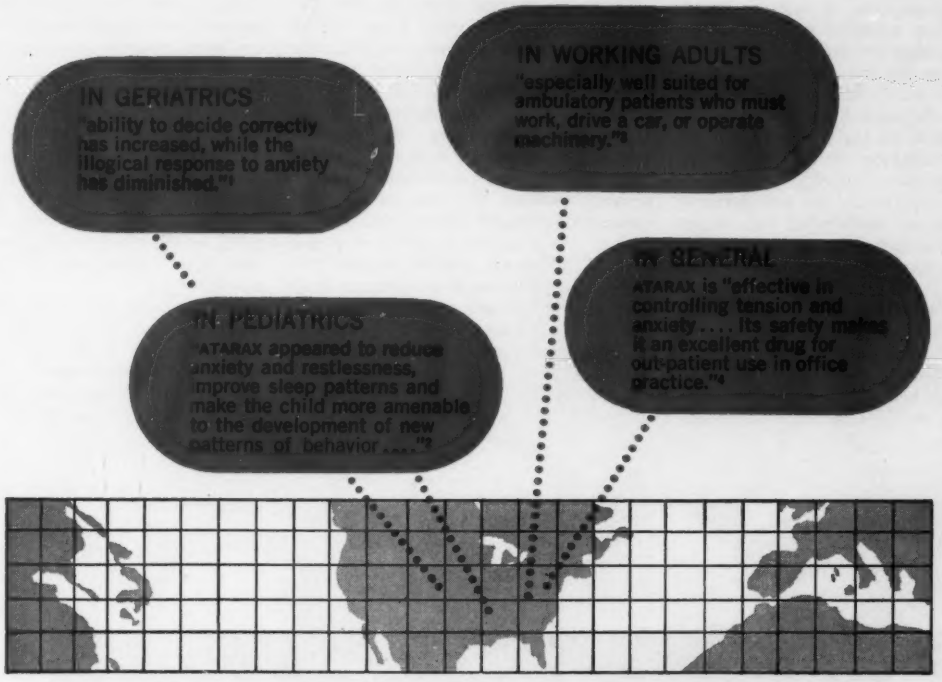
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berculous lesion in the lung and a latent infection such as syphilis might hinge on this very point; that for resurrection to disease, the latter would require changes in the microbe itself.

### POINT OF DRUG SUSCEPTIBILITY

While considering the role of the host in maintaining an infection in the dormant or latent state it is also appropriate to consider to what extent antimicrobial therapy can exert an influence in this respect. The question might be phrased by inquiring whether microbes that are not actively producing disease are likely to be drug susceptible. A fair amount of information is available on this point. The information is derived both from laboratory studies and from five clinical situations in which it has been possible to observe the effects of drug therapy administered in the early hours after the moment of infection. In all five clinical examples (syphilis, malaria, scrub typhus, tuberculosis, Q fever), the antimicrobial therapy was not eradicative, but simply held the situation frozen, so-to-speak, for as long as its administration was continued.

The observations on these various diseases suggest that there exists a stage to which the host-parasite reaction must mature before the infection is fully drug susceptible as measured by post-treatment relapse.[9] In the Tigertt-Benenson studies of Q fever it was shown that this particular stage of maturity is not necessarily so old as the stage of evolution to the full clinical illness.[14] When the treatment was started before this stage, however, it was clearly ineffective and served only to produce a slight prolongation of the incubation period of the clinical illness.

From these five clinical examples[9-9] and especially the two that were conducted experimentally by Smadel and Woodward and their associates[15] and by Tigertt and Benenson, it is clear that the phenomenon of drug indifference or microbial persistence can be present from the very beginning of an infection. Even at the earliest stages of an infection when the untreated microbial population is presumably at its lowest census, the introduction of antimicrobial therapy is by no means totally eradicative. In these circumstances, moreover, it is important to note that microbial persistence can occur without evoking the host-immune response characteristic of that particular infection. As a practical matter it makes no real difference whether certain microbes in an infecting population are drug indifferent at the time of implantation or whether the whole process of conversion to drug indifference occurs after infection has been accomplished and drug therapy started. In either case drug indifference can be present in the early moments of infection, and this fact is obviously of crucial importance with respect to chemoprophylaxis.

Many factors are presumably involved in the successful transmission of one or more microbes from one host to another, and the actual physical transfer of an infecting population to a new host is not necessarily followed by their successful maintenance there. The presence of a prophylactically administered drug in the fluids of the new host might well make the difference between the success or the failure of the implanted microbes to survive. What must be recognized, however, is that even if an antimicrobial drug is present in the tissue fluids at the time of the initial microbial seeding there is no reason to doubt that some of the microbes may survive as persisters. Consequently, the possibility seems highly likely that chemoprophylaxis—to the extent that it is employed to try to prevent actual infection—will only be uniformly successful with the very few highly fragile microbes, such as gonococci, meningococci, or dysentery bacilli, that appear to have little capacity to survive as persisters.

Although the premature drug therapy was ultimately unsuccessful in the five examples cited, it was clear that the infections were suppressed as long as the antimicrobial therapy was continued. This implies that the microbial populations


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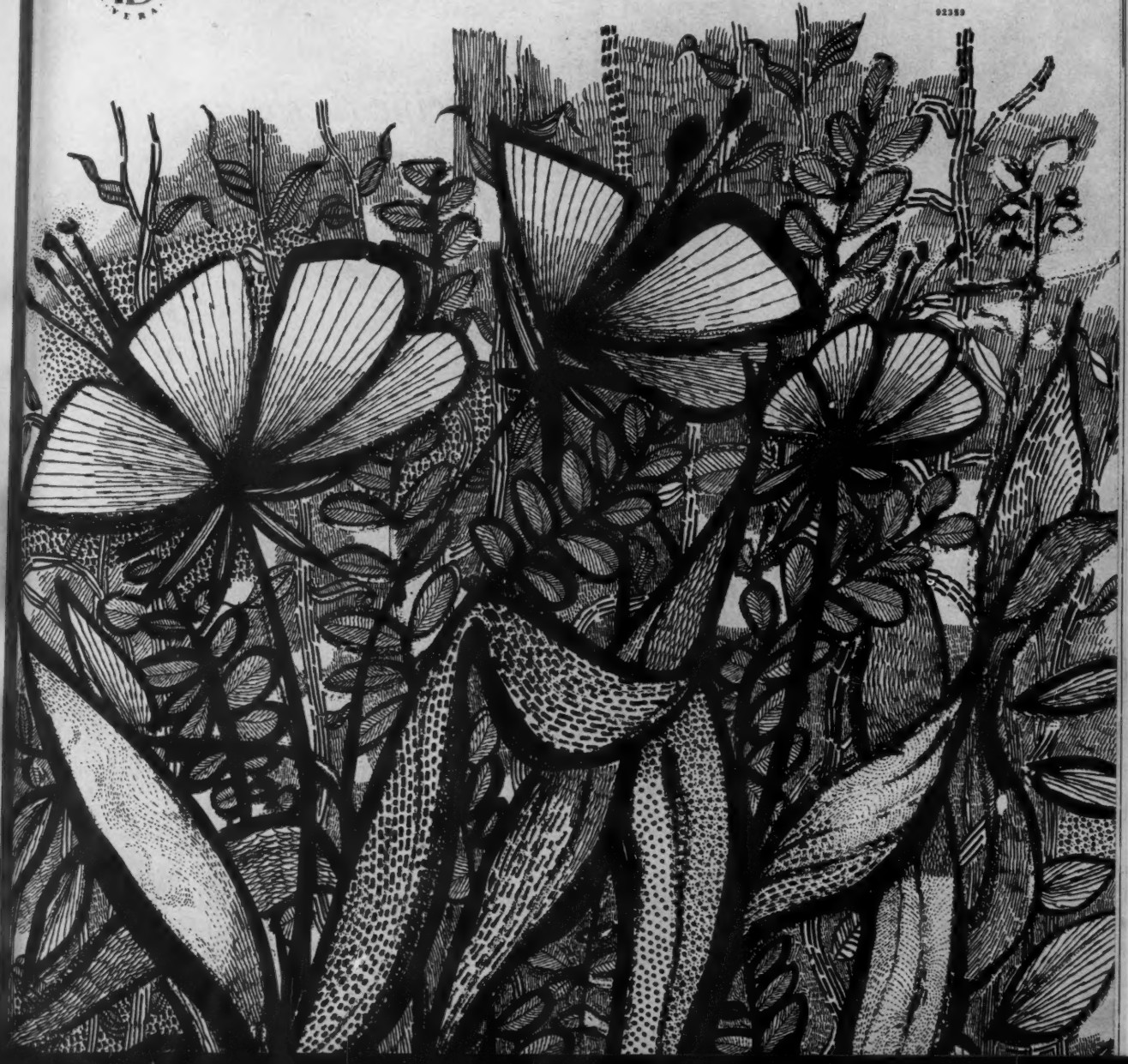
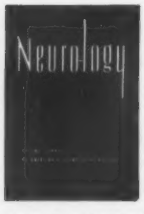


QUESTION:

**What have authorities reported as to the efficacy of Fiorinal in tension headache?**

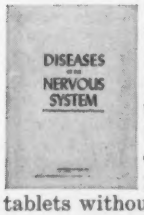
ANSWERS:

**From the published reports of leading clinicians.**



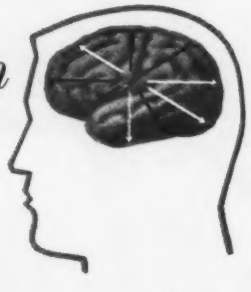

"The most effective symptomatic medication in the treatment of tension headache have been several analgesic and sedative combinations. One of the most effective is Fiorinal, which yielded relief in two out of three patients." *(Friedman, A. P., von Storch, T. J. C. and Merritt, H. H.: Neurology 4:773, Oct. 1954.)*

"In the treatment of tension headaches... [Fiorinal's non-narcotic action] offers a better opportunity for relief than some usually prescribed non-narcotic analgesics." *(Weisman, S. J.: Am. Pract. & Digest. Treat. 6:1019, July 1955.)*




"Fiorinal appears to be one of the most useful preparations to date for the relief of tension headaches. Easing of the head discomfort was accomplished by one or two tablets without any unpleasant side effects such as drowsiness or gastric upsets. In many cases Fiorinal appeared to temporarily relieve the discomfort from sinus trouble or acute respiratory infections." *(Kibbe, M. H.: Dis. Nerv. System 16:77, March 1955.)*

*specific therapy for tension headache*



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were both drug indifferent and drug influenced at the same time. Presumably, what happens in this apparently paradoxical situation is that a significant proportion of the microbial population is in fact drug indifferent and remains so. But as the tissue environment contains antimicrobial drug, whenever individual microbes revert from drug indifference to a state of drug susceptibility or new cells are born into this state they are promptly inhibited by the drug. As a result the population as a whole is kept constantly suppressed, a condition I like to describe as being in a state of physiological imprisonment.

In the clinical instances cited, the physiologically imprisoned microbes were able to resurge to the point of producing clinical illness once the antimicrobial drug was removed from the tissue environment. It is conceivable that if the physiological imprisonment were maintained for a sufficiently long period, the microbial populations might die off completely in some cases and in others assume a latent or dormant state that would continue even in the absence of drug. Presumably something akin to the last-named possibility occurs in the puzzling case of drug-resistant persisters.

It would hardly be proper, in a discussion of inapparent infection, to fail to note the possibility that latent or dormant infections, either natural or drug associated, are capable of damaging the tissues by their continued presence there. This is the sort of speculative exercise that can get rapidly out of hand. Nevertheless, it seems appropriate to mention a few diseases, associated with microbial infection, in which demonstration of the indicted microbe in the tissues in its recognizable form has either never been accomplished or has been accomplished only rarely. The two principal diseases in this category are syphilis and rheumatic fever. Sarcoidosis might possibly represent a third example, but the indirect association of these lesions with tubercle bacilli is considerably less definite than the indirect association of rheumatic carditis with streptococci or tabes dorsalis with *T. pallidum*.

The fact that tabes dorsalis is caused by *T. pallidum* is generally accepted, yet the presence of the spirochete in the lesions has never been convincingly demonstrated. To some extent this situation is not comparable with that of other infections because no method exists whereby *T. pallidum* can be cultured. Nevertheless, *T. pallidum* can be demonstrated by microscopy of stained tissue in certain other lesions of syphilis, notably parenchymal disease of the brain and in the lungs and liver of syphilitic newborn. In the pre-penicillin era, the lesions of tabes dorsalis were generally considered to represent the sterile end result of a previous involvement with *T. pallidum*. It came as a considerable surprise, therefore, to note clinical improvement in the so-called "lightning pains" of tabes dorsalis when afflicted patients were treated with penicillin. To be sure, evaluation of improvement in "lightning pains" is notoriously difficult, but long-experienced clinicians were convinced that penicillin influenced them. Thus an antimicrobial drug appears to exert its influence in lesions that hitherto were not considered to contain microbes. As noted above, however, the possibility remains that the lesions of tabes dorsalis represent an active syphilitic process, and it is merely our inability to cultivate *T. pallidum* that makes the situation seem at all unusual.

The lesions of rheumatic carditis are not generally believed to represent a direct tissue reaction to the presence of streptococci but some type of unusual host reaction to previous streptococcal infection elsewhere in the body. Moreover, on microscopic examination of the lesions of an acute rheumatic carditis, streptococci are not to be seen. Nevertheless, reports recur of the successful cultivation of streptococci from the acute lesions of acute rheumatic carditis in patients who have died during the acute stage of the disease.[10-13] These reports have been made by knowledgeable people who have presented their findings with great diffidence. In today's climate of opinion, how-


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ever, the general tendency with respect to the observations has simply been to look the other way. In experiments in rabbits, however, Denny and Thomas have shown that group A streptococci could persist in the tissues for many weeks and could then be evoked to the stage of bacteremia by the administration of cortisone.[30] Whether, prior to evocation, they were dealing with a dormant or truly latent infection cannot be stated because the experiments were not designed for the specific study at this point.

Thus, with all due respect to the many more widespread beliefs concerning the relationships of *T. pallidum* to tabes dorsalis and streptococci to rheumatic fever, the possibility that these microbes in dormant or latent form are actually present in the respective lesions cannot be excluded.

### OUR CONTEMPORARY CHALLENGE

What is the magnitude of the problem we face today with respect to this resurrection of infections from the inapparent state to the state of progressive disease? It is quite clear that the problem is a formidable one and by its very nature is bound to become even more so in the future. Indeed, it is not always appreciated that in the economically developed countries today it is these endogenous infections that constitute virtually the entire load of illness caused by all forms of microbial disease except those caused by viruses. In short, on an individual basis today, but on one that is bound to steadily widen, man is beginning to succumb to his own microbes.

All that is necessary to see this is to enter an adult ward of a general hospital any morning and inquire what problems are present that day with respect to infection. This is an experience that I happen to have every 6 weeks as part of our teaching program, and it is most illuminating. Certain points immediately become evident. First, a surprisingly important portion of the disease load on a general hospital ward on any one day is still caused by microbial infection. Second, no one microbial species or genus is particularly involved but rather the disease load is caused by a relatively wide assortment of microbes. Third, despite the heterogenicity, these disease-producing microbes have one outstanding characteristic in common: they all form what is customarily regarded as the normal microbial flora of man.

Thus the microbes causing the greater portion of our morbidity in hospitalized patients today are the familiar microbial species that through the years we have grown accustomed to regard without fear. On any one day the disease assortment will include infections produced by *E. coli, A. aerogenes, Proteus, Pseudomonas,* nonhemolytic streptococci, and *Monilia.* Two other microbes, staphylococci and tubercle bacilli, likewise deserve inclusion on the ground that although they are capable of producing disease they commonly inhabit our bodies without doing so. Approximately one-half of any group of adults are carriers of potentially pathogenic staphylococci. With tubercle bacilli the situation depends on one's age. It is estimated that 40 percent of the population of the United States over the age of 30 are harboring living tubercle bacilli so that in effect both tubercle bacilli and staphylococci can be considered to be part of man's normal microbial flora.

All of these microbes have the capacity to survive for long periods in man without causing either benefit or harm insofar as can be detected by today's methods. But when man's internal environment is suitably altered, as is so often the case today, all of these microbes have the capacity to arise and produce serious illness.

The ways whereby man's internal environment is subject to alteration today are familiar to us all and represent the unsought portion of the consequences of our great therapeutic advances. In ever-enlarging measure these advances are making it possible for us to permit the survival of the socially desirable but biologically unfit. This sociobiological force is not limited in its impact to in-


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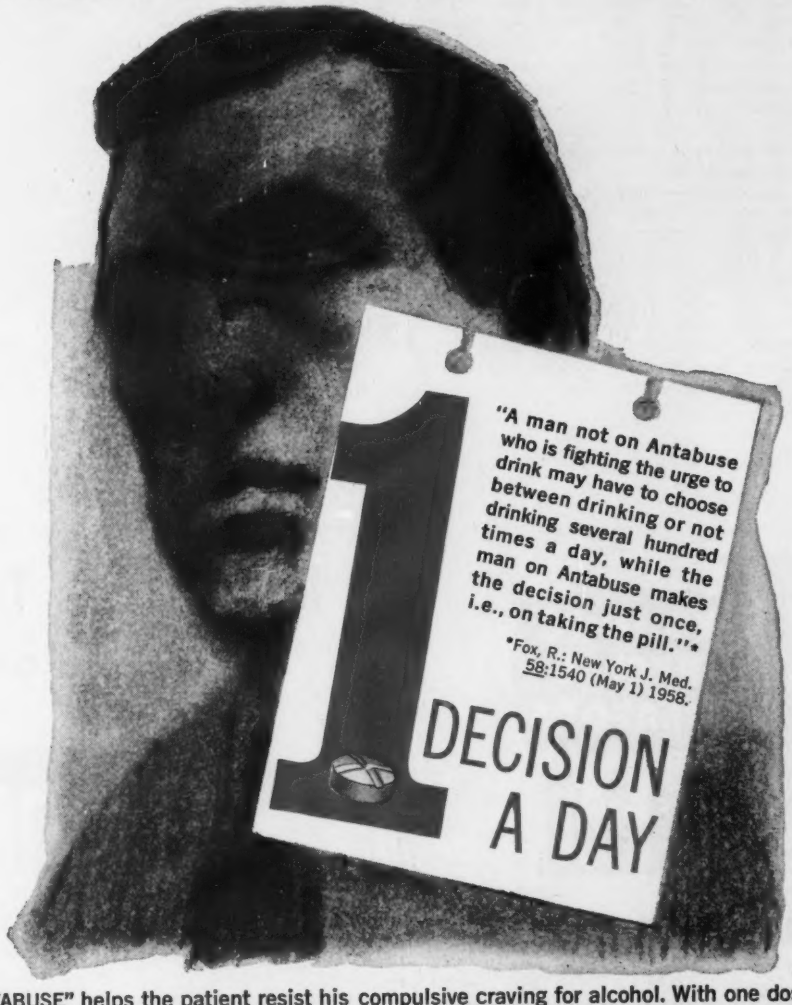
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fancy and childhood but is operative to a considerable extent at all ages of life. As a consequence there are many more of us who consider ourselves to be in "good health" but who have some defect with respect to our ability to make our own adaptation to the microbes around us. The defect may be in our structure or in our experience.

Even those of us who were structurally sound to begin with and who have not been overly protected against life's microbial experiences may rapidly lose our veteran status if we have to give up certain of our tissues to the surgeons or of necessity must be saturated with certain hormones. When man's internal environment was modified by politically induced states of extreme deprivation, such as in a Nazi concentration camp, the disease produced was largely microbial and was caused by the more prominent of the microbes that inhabit man.[21] When crudely comparable states of deprivation are produced today by long-continued corticosteroid administration, the results are the same. And, if we accompany the tissue deprivation by a drug-induced suppression of the more prominent microbes, we get disease by the less prominent microbes such as *Monilia*.

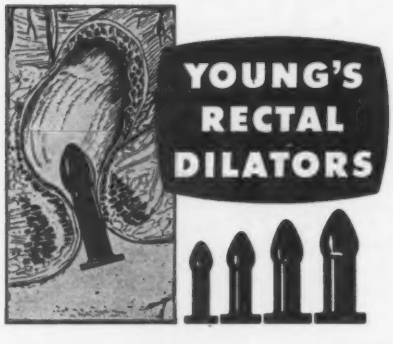
We have been relatively slow in recognizing the importance of this problem of endogenous infection today. One part of it we seem to have almost suddenly discovered, namely, the hospital infections due to staphylococci. But we are slow in recognizing that important as staphylococci are—and I have no desire to minimize their importance—they represent, nevertheless, only a part of what is a considerably larger contemporary problem. Indeed, in terms of serious or fatal microbial disease in our adult hospital services, the intestinal bacilli and the fungi are usually even greater offenders than staphylococci. We are also too prompt to attribute successful microbial survival in this drug-ridden world to the phenomenon of genotypic drug resistance. It is not so much that drug-resistant staphylococci or the drug resistant members of other microbial genera are not important today as it is that they represent only one of the many ways whereby microbes can successfully adapt to the changes around them. The serious illness and death due to microbial disease today are not chiefly a result of once-susceptible microbes that have now become drug resistant. Instead, to an increasing extent, these diseases are being caused by microbes that never were susceptible to our drugs but hitherto have managed to persist in an inconspicuous fashion in our tissues.

As we have seen, not only does man lack the power to create life but his ability to destroy it, at least at the microbial level, is sharply limited. To the extent that this means that microbial adaptability will continue to blunt our attempts at therapy and prophylaxis, the situation might be regarded as being somewhat gloomy. But to the extent that what holds for the microbes holds for us as well, any restriction on man's ability to exterminate life has its good side too.

## *References*


1. LeMaistre, C. A., and Tompsett, R.: The emergence of pseudotuberculosis in rats given cortisone. J. Exper. Med. 95:393-408 (1952).
2. Gundel, M., György, P., and Pagel, W.: Experimentelle Beobachtungen zu der Frage der Resistenzverminderung und Infektion. Ztschr. Hyg. 113:629-644 (1932).
3. Zucker, T. F., and Zucker, L. M.: Pantothenic acid deficiency and loss of natural resistance to a bacterial infection in the rat. Proc. Soc. Exper. Biol. & Med. 85:517-521 (1954).
4. McCune, R. M., Jr., Tompsett, R., and McDermott, W.: The fate of mycobacterium tuberculosis in mouse tissues as determined by the microbial enumeration technique. II. The conversion of tuberculous infection to the latent state by the administration of pyrazinamide and a companion drug. J. Exper. Med. 104:763-802 (1956).
5. Dubos, R. J.: The evolution and the ecology of microbial disease. *In* Bacterial and mycotic infections of man, edited by R. J. Dubos. Ed. 3, Philadelphia, J. B. Lippincott Co., 1958, pp. 14-25.
6. McDermott, W.: Microbial persistence. Yale J. Biol. & Med. 30:257-291 (1958).
7. Eagle, H.: The binding of penicillin in relation to its cytotoxic action. III. The binding of penicillin by mammalian cells in tissue culture (HeLa and L strains). J. Exper- Med. 100:117-124 (1954).
8. Tompsett, R.: Protection of pathogenic staphylococci by phagocytes. Tr. A. Am. Physicians 69:84-92 (1956).
9. McDermott, W.: Chemotherapy of microbial diseases. *In* Bacterial and mycotic infections of man, edited by R. J. Dubos. Ed. 3. Philadelphia, J. B. Lippincott Co., 1958, pp. 694-726.



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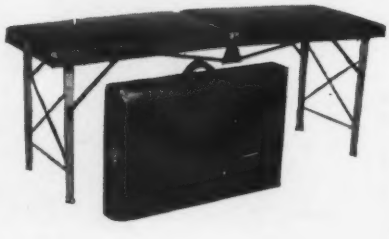

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A new, unique pharmacologic screening method demonstrates that buclizine [SOFTRAN] is not depressant and possesses qualities of a true tranquilizer. Cutting, Windsor, M.D., Baslow, Morris, Ph.D., Read, Dorothy, Ph.D., and Furst, Arthur, Ph.D., School of Medicine, Stanford University, Palo Alto, California. The Use of Fish in the Evaluation of Drugs Affecting the Nervous System. Quart. Rev. Psychiat. & Neurol. (accepted for publication)

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In studies using buclizine [SOFTRAN] for patients with anxiety associated with infertility SOFTRAN was found to be an effective tranquilizer. In doses of 50 mg. twice daily, adequate effectiveness was obtained without undue drowsiness or other noticeable side effects. Schultz, John, M., M.D., Miami, Florida. (personal communication)

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It is particularly noteworthy that systolic blood pressure is often reduced in patients with essential hypertension. Diminution of psychic stress factors is apparently responsible for this hypotensive effect. Settel, Edward, M. D. Buclizine, a New Tranquilizing Agent. J. Am. Geriatrics Soc. 7:67 (Jan.) 1959.

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Buclizine [SOFTRAN] and placebo were employed in a double blind study conducted with patients having anxiety symptoms associated with infertility. Marked tranquilizing properties were observed with the buclizine-containing preparation [SOFTRAN]...The product was well tolerated; side effects, such as drowsiness, were minimal. Olson, H. J., M.D., Peterson, J. E., Ph.D. and Tyler, E. T., M.D. The use of Tranquilizing Agents in Infertility. Obst. & Gyn. (accepted for publication)



10. Williamson, G. M.: Dihydrostreptomycin and anaerobiosis. Indirect evidence for two sites of action of dihydrostreptomycin. J. Gen. Microbiol. 19:584-591 (1958).
11. Weibull, C.: Bacterial protoplasts. Their formation and characteristics. *In* Bacterial anatomy. The sixth symposium of the Society for General Microbiology. Cambridge, England, Cambridge University Press, 1956, pp. 111-126.
12. Wittler, R. G.: The L-form of *Haemophilus pertussis* in the mouse. J. Gen. Microbiol. 6:311-317 (1952).
13. Wittler, R. G., Cary, S. G., and Lindberg, R. B.: Reversion of a pleuropneumonia-like organism to a *Corynebacterium* during tissue culture passage. J. Gen. Microbiol. 14:763-774 (1956).
14. Tigertt, W. D., and Benenson, A. A.: Studies on Q fever in man. Tr. A. Am. Physicians 69:98-104 (1956).
15. Smadel, J. E., Traub, R., Ley, R. L., Jr., Philip, C. B., Woodward, T. E., and Lewthwaite, R.: Chloramphenicol (Chloromycetin) in the chemoprophylaxis of scrub typhus (tsutsugamushi disease). II. Results with volunteers exposed in hyperendemic areas of scrub typhus. Am. J. Hyg. 50:75-91 (1949).
16. Collis, W. R. F.: Bacteriology of rheumatic fever. Lancet 2:817-820 (1939).
17. Green, C. A.: Researches into the etiology of acute rheumatism. I. Rheumatic carditis: Postmorten investigation on nine consecutive cases. Ann. Rheumat. Dis. 1:86-98 (1939).
18. Thomson, S., and Innes, J.: Haemolytic streptococci in the cardiac lesions of acute rheumatism. Brit. M. J. No. 4169:733-736 (1940).
19. Raska, K., Rotta, J., Bednar, B.: Experimental intranasal infection of rabbits with group A streptococci. J. Hyg. & Epidem., Praha 1:377-386 (1957).
20. Denny, F. W., Jr., and Thomas, L.: Persistence of group A streptococci in tissues of rabbits after infection. Proc. Soc. Exper. Biol. & Med. 88:260-263 (1955).
21. Helweg-Larsen, O., and others: Famine disease in German concentration camps. Complications and sequels. Acta psychiat. et. neurol., 1952, supp. 83.
22. Sherman, J. M., and Albus, W. R.: Physiological youth in bacteria. J. Bact. 8:127-139 (1923).


# Books received

*Books received for review during the period from June 5 to July 5, are listed below. Reviews will be published as space permits.*

DISEASES OF THE NOSE, THROAT, AND EAR. Edited by Chevalier Jackson, M.D., Sc.D., LL.D., L.H.D., F.A.C.S., Late Honorary Professor of Laryngology and Broncho-Esophagology, Temple University Medical Center, Philadelphia; and Chevalier L. Jackson, M.D., M.Sc., F.A.C.S., Professor of Laryngology and Broncho-Esophagology, Temple University Medical Center, Philadelphia. Ed. 2. Cloth. Pp. 886, with illustrations. Price $20.00. W. B. Saunders Company, Publishers, West Washington Square, Philadelphia 5, 1959.

THE ESSENTIALS OF ROENTGEN INTERPRETATION. By Lester W. Paul, M.D., Professor of Radiology and Chairman of the Department of Radiology, The University of Wisconsin Medical School; and John H. Juhl, M.D., Associate Professor of Radiology, The University of Wisconsin Medical School. Cloth. Pp. 839, with illustrations. Price $25.00. Paul B. Hoeber, Medical Book Department of Harper & Brothers, 49 East 33rd Street, New York 16, 1959.

CLINICAL DERMATOLOGY. For Students and Practitioners. By Harry M. Robinson, Jr., B.S., M.D., Professor of Dermatology and Head of the Division of Dermatology, University of Maryland School of Medicine; Chief Dermatologist, University Hospital; and Raymond C. V. Robinson, B.S., M.D., M.Sc., Associate Professor of Dermatology, University of Maryland School of Medicine; Assistant Chief of the Dermatology Clinic, University Hospital. Cloth. Pp. 242, with illustrations. Price $8.50. The Williams & Wilkins Company, Mount Royal Guilford Avenues, Baltimore 2, 1959.

THE BIOLOGICAL, SOCIOLOGICAL AND PSYCHOLOGICAL ASPECTS OF AGING. By Kurt Wolff, M.D., Clinical Director, Galesburg State Research Hospital, Galesburg, Illinois; Formerly, Director of Geriatric Treatment and Research Unit, Osawatomie State Hospital, Osawatomie, Kansas. Cloth. Pp. 95. Price $3.75. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

THAT THE PATIENT MAY KNOW. An Atlas for Use by the Physician in Explaining to the Patient. By Harry F. Dowling, M.D., Sc.D., Professor of Medicine, University of Illinois; and Tom Jones, B.F.A., Professor of Medical Illustration, Emeritus, University of Illinois. Cloth. Pp. 139, with illustrations. Price $7.50. W. B. Saunders Company, Publishers, West Washington Square, Philadelphia 5, 1959.

SURGERY OF THE FOOT. By Henri L. DuVries, M.D., Clinical Instructor in Surgery, Chicago Medical School; Attending Surgeon, Columbus Hospital, Mother Cabrini Hospital, and Frank Cuneo Hospital; Chairman, Department of Surgery, Illinois College of Chiropody and Foot Surgery, Chicago. Cloth. Pp. 494, with illustrations. Price $12.50. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1959.

HYPERTENSIVE DISEASE. Diagnosis and Treatment. By Sibley W. Hoobler, M.D., Associate Professor of Internal Medicine, University of Michigan Medical School; Director of Hypertension Unit, University of Michigan Hospital. Cloth. Pp. 353, with illustrations. Price $7.50. Paul B. Hoeber, Medical Book Department of Harper & Brothers, 49 East 33rd Street, New York 16, 1959.

INTRACRANIAL CALCIFICATION. By Fermo Mascherpa, Chief of the X-ray Department, Milan Neurological Institute, Milan, Italy; and Vincenzo Valentino, Radiologist of the Institute of Semeiological Medicine, Naples University; Neuroradiologist of the Hospital "A Cardarelli," Naples, Italy. Cloth. Pp. 150, with illustrations. Price $9.50. Charles C Thomas, Publisher, East Lawrence Avenue, Springfield, Illinois, 1959.

SURVEY OF CLINICAL PEDIATRICS. By Lawrence B. Slobody, M.D., Professor of Pediatrics, New York Medical College; Director of Pediatrics, Flower and Fifth Avenue Hospitals, Metropolitan Hospital; Medical Director, Children's Center, New York City. Ed. 3. Cloth. Pp. 556, with illustrations. Price $11.00. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, 1959.

TRAUMA. By Harrison L. McLaughlin, M.D., Professor of Clinical Orthopedic Surgery, College of Physicians and Surgeons, Columbia University. Cloth. Pp. 784, with illustrations. Price $18.00. W. B. Saunders Company, Publishers, West Washington Square, Philadelphia 5, 1959.

HERNIA. By Sir Heneage Ogilvie, K.B.E., M.A., M.Ch., F.R.C.S., Consulting Surgeon, Guy's Hospital. Cloth. Pp. 135, with illustrations. Price $6.50. Edward Arnold Publishers, London. The Williams and Wilkins Company, exclusive U.S. distributors, Mount Royal Guilford Avenues, Baltimore 2, 1959.

ABNORMAL HEMOGLOBINS: A Symposium Organized by The Council for International Organizations of Medical Sciences. Edited by J. H. P. Jonxis, State University, Groningen; and J. F. Delafresnaye, C.I.O.M.S., Paris. Cloth. Pp. 427, with illustrations. Price $9.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

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A MANUAL OF BANDAGING, STRAPPING AND SPLINTING. By Augustus Thorndike, M.D., F.A.C.S., Lecturer on Surgery, Harvard Medical School; Chief of Surgery, University Health Services, Harvard University. Ed. 3. Paper. Pp. 153, with illustrations. Price $2.75. Lea & Febiger, Washington Square, Philadelphia 6, 1959.

SYNOPSIS OF TREATMENT OF ANORECTAL DISEASES. By Stuart T. Ross, M.D., F.A.C.S., F.I.C.S., Diplomate of the American Board of Proctology; Secretary of the American Board of Proctology; Fellow and Past President of the American Proctologic Society; Fellow of the New York Proctologic Society; Fellow of the Pennsylvania Proctologic Society; Honorary Fellow of the New Jersey Proctologic Society; Corresponding Member of Sociedad Brasileira de Proctologia. Cloth. Pp. 240, with illustrations. Price $6.50. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1959.

NARCOTICS. Lingo and Lore. By J. E. Schmidt, Ph.B.S., M.D., Litt.D., President. The American Society of Grammatolators; Chairman, National Association on Standard Medical Vocabulary. Cloth. Pp. 199. Price $4.25. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

A LABORATORY MANUAL OF CRYPTOBRANCHUS ALLEGANIENSIS DAUDIN. By Hazel Elisabeth Branch, Ph.D., Professor Emeritus of Zoology, University of Wichita, Wichita, Kansas. Ed. 2. Cloth. Pp. 79, with illustrations. Price $2.95. Vantage Press, Inc., 120 West 31 Street, New York 1, 1959.

MEDICAL RADIOGRAPHIC TECHNIC. Edited by Glenn W. Files. Ed. 2. Cloth. Pp. 386, with illustrations. Price $11.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

METALS AND ENGINEERING IN BONE AND JOINT SURGERY. By Charles Orville Bechtol, M.D., Professor of Orthopedic Surgery and Chairman of Orthopedic Division, University of California, Los Angeles; Chairman of Subcommittee on Testing, Prosthetics Research Board, National Research Council; Albert Barnett Ferguson, Jr., M.D., Silver Professor of Orthopedic Surgery, and Chairman of Orthopedic Department, University of Pittsburgh; Children's and Presbyterian Hospital, Pittsburgh; Consultant, Orthopedic Surgery, U.S. Veteran's Hospital, Oakland, Pittsburgh; St. Margaret's Hospital, Pittsburgh; Green County Hospital, Waynesburg; and Patrick Gowans Laing, M.B., B.S., F.R.C.S., Assistant Professor of Orthopedic Surgery, University of Pittsburgh; Chief of Orthopedic Service, U.S. Veteran's Hospital, Oakland, Pittsburgh. Cloth. Pp. 186, with illustrations. Price $8.00. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, Maryland, 1959.

HISTORY AND TRENDS OF PROFESSIONAL NURSING. By Deborah MacLurg Jensen, R.N., B.S., M.A., Associate Director, School of Nursing, St. Louis City Hospital, St. Louis, Mo. Ed. 4. Cloth. Pp. 610, with illustrations. Price $5.25. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1959.

CEREBRAL ANGIOGRAPHY IN THE MANAGEMENT OF HEAD TRAUMA. By Charles A. Carton, M.D., Formerly Assistant Professor of Neurosurgery, Baylor University College of Medicine; Chief of Neurosurgery, Veterans Administration Hospital, Houston, Texas; Now Chief, Division of Neurosurgery, Montefiore Hospital and Associate Clinical Professor of Surgery (Neurosurgery), Albert Einstein College of Medicine, New York City, New York. Cloth. Pp. 157, with illustrations. Price $7.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

ELEMENTARY STATISTICS WITH APPLICATIONS IN MEDICINE AND THE BIOLOGICAL SCIENCES. By Frederick E. Croxton, Ph.D., Professor of Statistics, Columbia University. Paper. Pp. 376, with illustrations. Price $1.95. Dover Publications, Inc., 180 Varick Street, New York 14, 1959.

AN ATLAS OF NORMAL RADIOGRAPHIC ANATOMY. By Isadore Meschan, M.A., M.D., Professor and Director of the Department of Radiology, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina; Consultant, Walter Reed Army Medical Center, Washington, D.C.; Formerly Professor and Head of the Department of Radiology, University of Arkansas School of Medicine. Ed. 2. Cloth. Pp. 759, with illustrations. Price $16.00. W. B. Saunders Company, Publishers, West Washington Square, Philadelphia 5, 1959.

THE PROCESS OF AGING IN THE NERVOUS SYSTEM. Edited by James E. Birren, Ph.D., Henry A. Imus, Ph.D., and William F. Windle, Ph.D., Sc.D., of the U.S. Department of Health, Education, and Welfare Public Health Service, National Institutes of Health, Bethesda, Maryland. Cloth. Pp. 224, with illustrations. Price $7.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

CARCINOGENESIS MECHANISMS OF ACTION. Ciba Foundation Symposium. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Maeve O'Connor, B.A. Cloth. Pp. 336, with illustrations. Price $9.50. Little, Brown & Company, 34 Beacon Street, Boston.

TESTED METHODS OF RAISING MONEY. For Churches, Colleges, and Health and Welfare Agencies. By Margaret M. Fellows, Supervisor, Public Relations and Fund Raising, The Children's Aid Society, New York; and Stella A. Koenig, Coordinator of Community Contacts, Play Schools Association, Inc., and National Association for Practical Nurse Education, Inc., New York. Cloth. Pp. 463, with illustrations. Price $6.95. Harper & Brothers, Publishers, 51 East 33rd Street, New York 16, 1950, 1959.

TEXTBOOK OF PEDIATRICS. Edited by Waldo E. Nelson, M.D., D.Sc., Professor of Pediatrics, Temple University School of Medicine; Medical Director of St. Christopher's Hospital for Children. Ed. 7. Cloth. Pp. 1462, with illustrations. Price $16.50. W. B. Saunders Company, Publishers, West Washington Square, Philadelphia 5, 1959.

METHODS OF GEOGRAPHICAL PATHOLOGY. Report of the Study Group Convened by The Council for International Organizations of Medical Sciences. Edited by Richard Doll, Medical Research Council, Statistical Research Unit. Paper. Pp. 72. Price $2.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

THE PSYCHIATRIC NURSE IN THE GENERAL HOSPITAL. By Mary A. Tudbury, R.N., A.B., M.S., Assistant Director of Nursing, Taunton State Hospital, Taunton, Massachusetts. Cloth. Pp. 81. Price $3.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

MOLOY'S EVALUATION OF THE PELVIS IN OBSTETRICS. By Charles M. Steer, M.D., Med.Sc.D., F.A.C.S., F.A.C.O.G., Associate Professor of Clinical Obstetrics and Gynecology, College of Physicians and Surgeons, Columbia University, and the Solane Hospital for Women. Edition 2. Cloth. Pp. 131, with illustrations. Price $4.00. W. B. Saunders Company, West Washington Square, Philadelphia, 1959.

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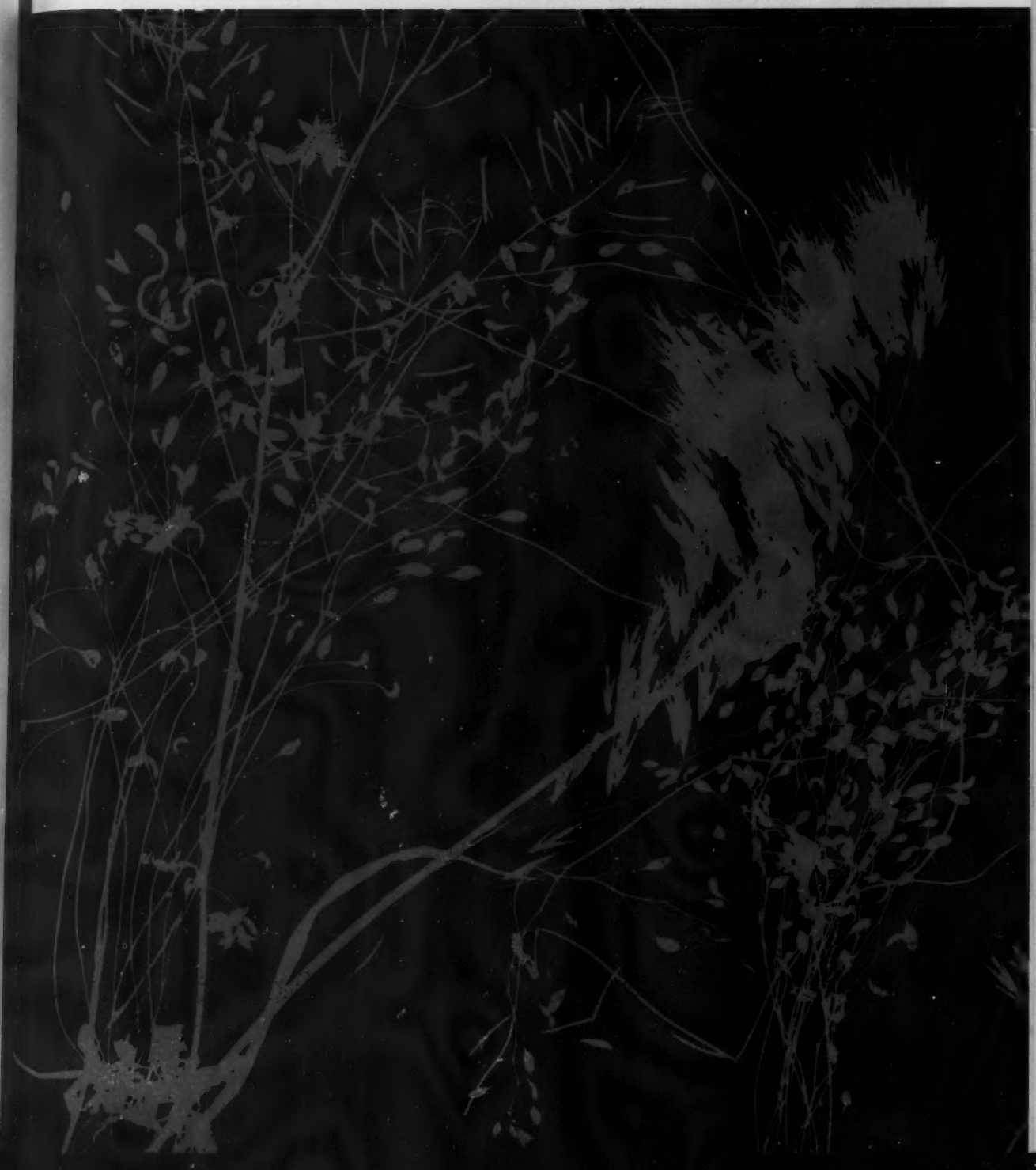

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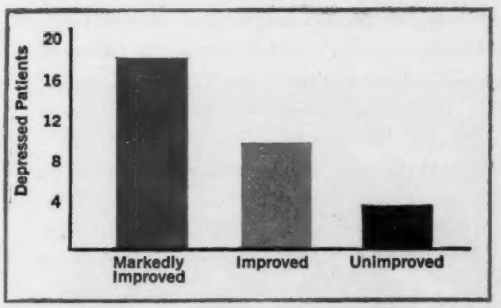


1. Agin, H. V.: In A Pharmacologic Approach to the Study of the Mind, Springfield, Ill., Charles C Thomas, in press.
2. Agin, H. V.: Conference on Amine Oxidase Inhibitors, New York Academy of Sciences, Nov. 20-22, 1958.

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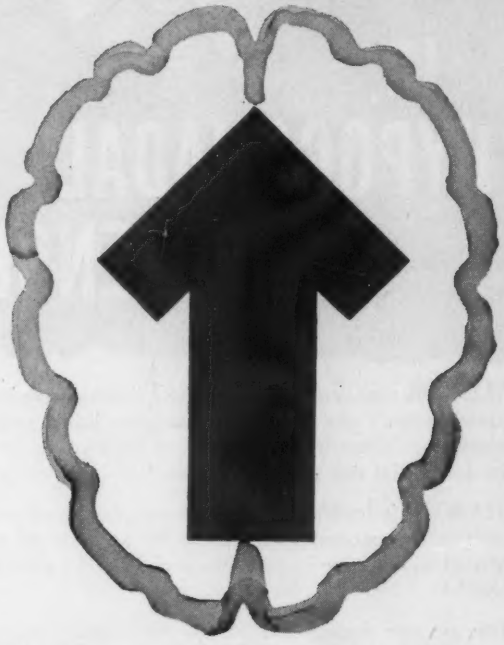

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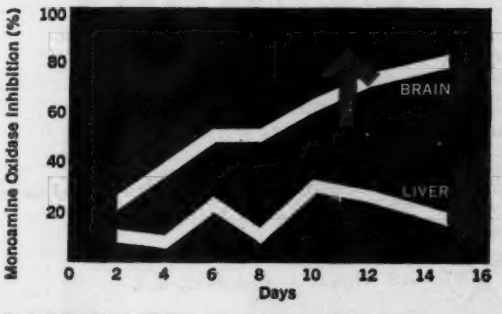


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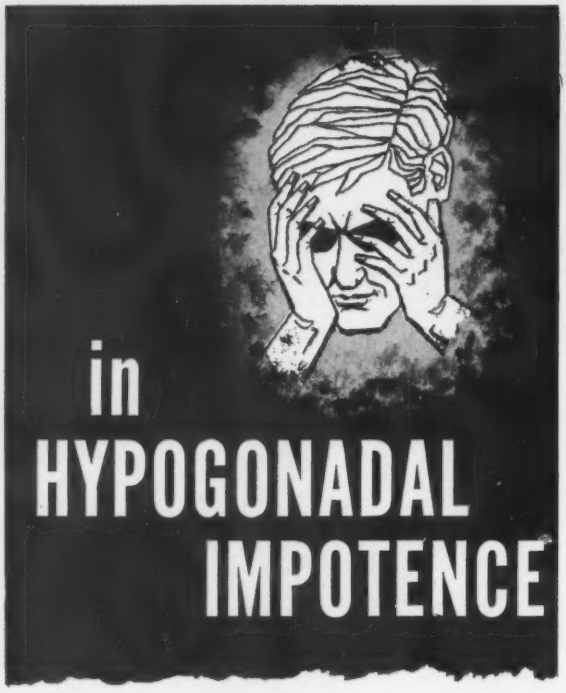

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**REFERENCES:**

1. *Drill's Pharmacology In Medicine*, 2nd ed., 1958, p. 949.
2. Gould, W. L., Impotence, *M. Times* 84:302, 1956.
3. Milhoan, A. W., Heterosexual vs. Homosexual Hormones, *Tri-State M. J.* 6:11 (Apr.) 1958.

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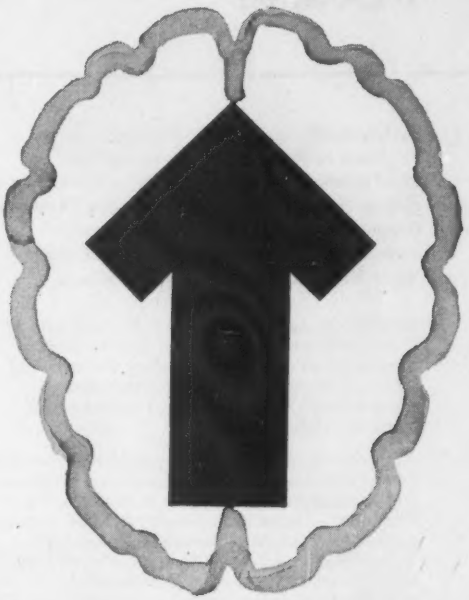

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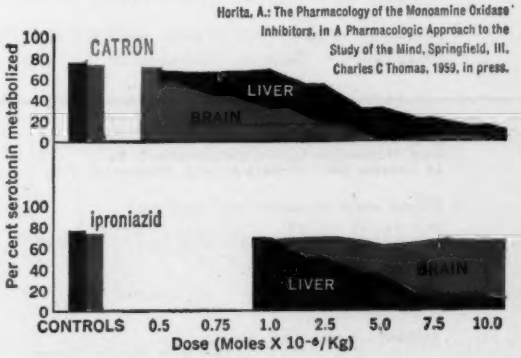


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CATRON Hydrochloride is a monoamine oxidase (MAO) inhibitor useful in the treatment of depression and of other disorders indicated below. It is recommended for use in carefully selected cases and in those patients who have not responded to the milder drugs.

### ADMINISTRATION AND DOSAGE

Dosage of CATRON must be individualized according to each patient's response. The initial daily dose should not exceed 12 mg. and should be reduced as soon as the desired clinical effect is obtained. In severe depressions some clinicians desire rapid results and begin treatment with 24 mg. daily: this dosage should not be continued for more than a few days. A single daily dose in the morning is recommended. A continuous or interrupted schedule may be used, the latter during the maintenance period.

**DEPRESSION** (Endogenous, Reactive, Postpartum, Involutional and Depression Secondary to Schizophrenic or Neurotic Reaction): initially, 12 mg. once daily for approximately 2 weeks, or less if improvement appears. Dosage is then reduced to 6 mg. daily. As improvement continues, maintenance dosage of 6 mg. every other day or of 3 mg. daily often proves satisfactory. An interrupted dose schedule is recommended for long-term therapy.

**ANGINA PECTORIS**—3 to 6 mg. daily in most cases. Relief of pain and elevation of mood may be dramatic. Victims of angina pectoris who respond in this manner should be cautioned against overexertion induced by their sense of well-being.

**RHEUMATOID ARTHRITIS** (Adjunctive Therapy—in severely disabling forms, particularly when accompanied by depression): 9 to 12 mg. daily for 3 days, then 6 mg. daily, reducing further to 3 mg. daily on signs of improvement. If a conventional antiarthritic agent is used, lower doses of each are indicated.

### CAUTION

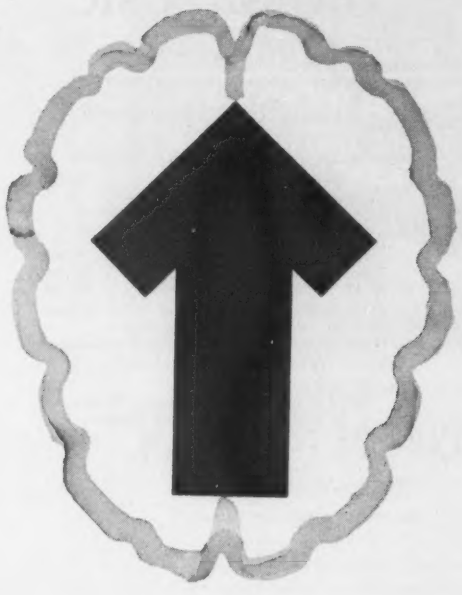
Certain circumstances should be watched carefully when using CATRON.

**DRUG POTENTIATION**—The list of drugs which CATRON potentiates is not yet complete. CATRON should not be used concomitantly with any other drug unless, (a) it has been ascertained that the two drugs bear no qualitative relationship, or (b) potentiating action is being sought, as may be the case with tranquilizing drugs including reserpine and the phenothiazines, and with the amphetamines, barbiturates and hypotensive agents.

**HYPOTENSIVE EFFECT**—All normotensive patients receiving CATRON, but especially elderly patients, should be warned about the possibility of orthostatic hypotension during the initial period of higher dosage. In the few instances where this may occur, lowering of the dose will usually permit continuation of therapy.

**COLOR VISION**—A reversible red-green color defect has been reported in a few patients, chiefly hypertensives, on ex-

# Psychoactive Agent



- Brightens mood, diminishes apathy and confusion, curbs symptoms of withdrawal, self-pity, inadequacy, despair.[1,2]
- Acts selectively on brain at doses having little or no effect on liver.[5-7]
- Valuable in depressions associated with chronic diseases such as angina pectoris,[8] severe rheumatoid arthritis.[9]

For detailed information, request Brochure No. 19, CATRON

tended therapy with CATRON. Discontinue the drug if such changes occur.

**ANIMALS, NEUROLOGIC SIGNS**—In toxicity studies with animals, a neurologic syndrome has been observed characterized by tremors, muscle rigidity and difficulty in locomotion. Although extensive clinical experience has not shown such reactions to be a problem in humans in recommended dosage, should a similar neurologic disturbance occur, the possibility of drug action should be considered.

**SIDE EFFECTS**—Major side effects requiring cessation of therapy are infrequent. Other side effects—constipation, delay in starting micturition, increased sweating, hyperreflexia, ankle edema, blurring of vision, dryness of the mouth—are usually readily controlled by lowering the dosage. Rash, observed in a few patients, cleared up rapidly upon discontinuing therapy.

**WARNING:** Pharmacologic studies show that with proper dosage CATRON will inhibit monoamine oxidase in the brain without influencing this enzyme in the liver. This is in contrast to previous inhibitors, which depress monoamine oxidase activity in the liver before affecting this enzyme in the brain.

Although the evidence suggests that serious life-threatening hepatitis seen with other MAO inhibitors should not occur with CATRON in the recommended dosage, it has been reported on rare occasion with dosages in excess of the recommended levels.

**The Following Precautions are Recommended:**

1. In all instances daily dose should not exceed 12 mg.
2. Reduce daily dose as soon as response is established, usually in a matter of 1 to 2 weeks.
3. Do not prescribe to a patient more than sixteen 6 mg. tablets or thirty-two 3 mg. tablets of CATRON at one time.
4. Patient should return for observation before additional CATRON is prescribed. For this reason, prescriptions for CATRON should be marked, "not refillable."
5. Perform regular liver function tests.
6. Do not use the drug in patients with a history of viral hepatitis or other liver abnormalities.

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(1) Agin, H. V.: The Use of JB-516 (CATRON) in Psychiatry, Conference on Amine Oxidase Inhibitors, New York Academy of Sciences, Nov. 20-22, 1958. (2) Bercel, N. A.: A Pharmacologic Approach to the Study of the Mind, Springfield, Ill., Charles C Thomas, 1959, in press. (3) Kinross-Wright, J.: Panel Discussion of Psychic Energizers, *ibid.* (4) Kinross-Wright, J.: Experience with JB-516 (CATRON) and Other Psychochemicals in Clinical Practice, Conference on Amine Oxidase Inhibitors, New York Academy of Sciences, Nov. 20-22, 1958. (5) Horita, A., and Parker, R. G.: Comparison of Monoamine Oxidase Inhibitory Effects of Iproniazid and Its Phenyl Congener, Proc. Soc. Exper. Biol. & Med. 99:617, 1958. (6) Horita, A.: *Beta*-Phenylisopropylhydrazine, A Monoamine Oxidase Inhibitor, Fed. Proc. 17:379, 1958. (7) Horita, A.: The Pharmacology of the Monoamine Oxidase Inhibitors, in A Pharmacologic Approach to the Study of the Mind, Springfield, Ill., Charles C Thomas, 1959, in press. (8) Kennamer, R., and Prinzmetal, M.: Treatment of Angina Pectoris with CATRON (JB-516), Am. J. Cardiol. 3:542, 1959. (9) Scherbel, A. L., and Harrison, J. W.: The Effects of Iproniazid and Some Other Amine Oxidase Inhibitors in Rheumatoid Arthritis, Conference on Amine Oxidase Inhibitors, New York Academy of Sciences, Nov. 20-22, 1958.

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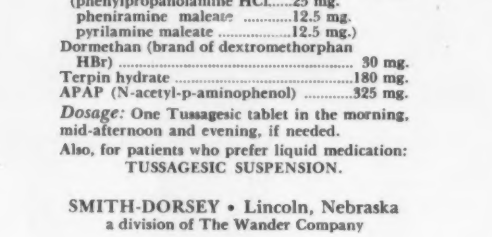

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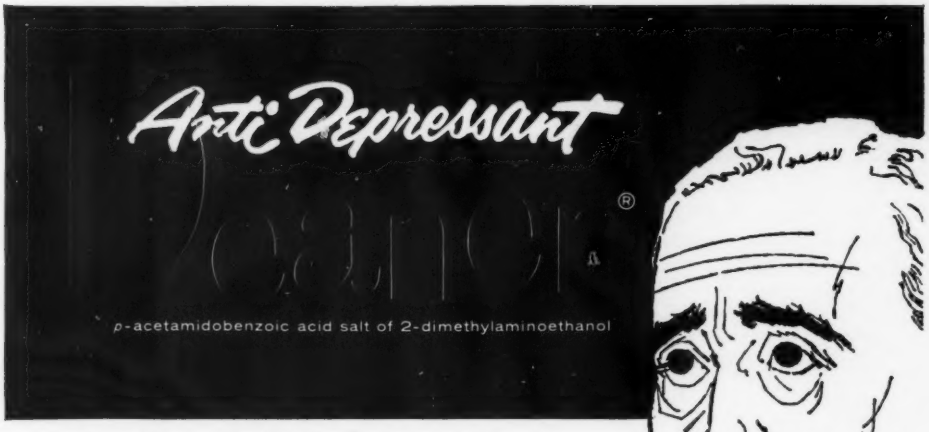




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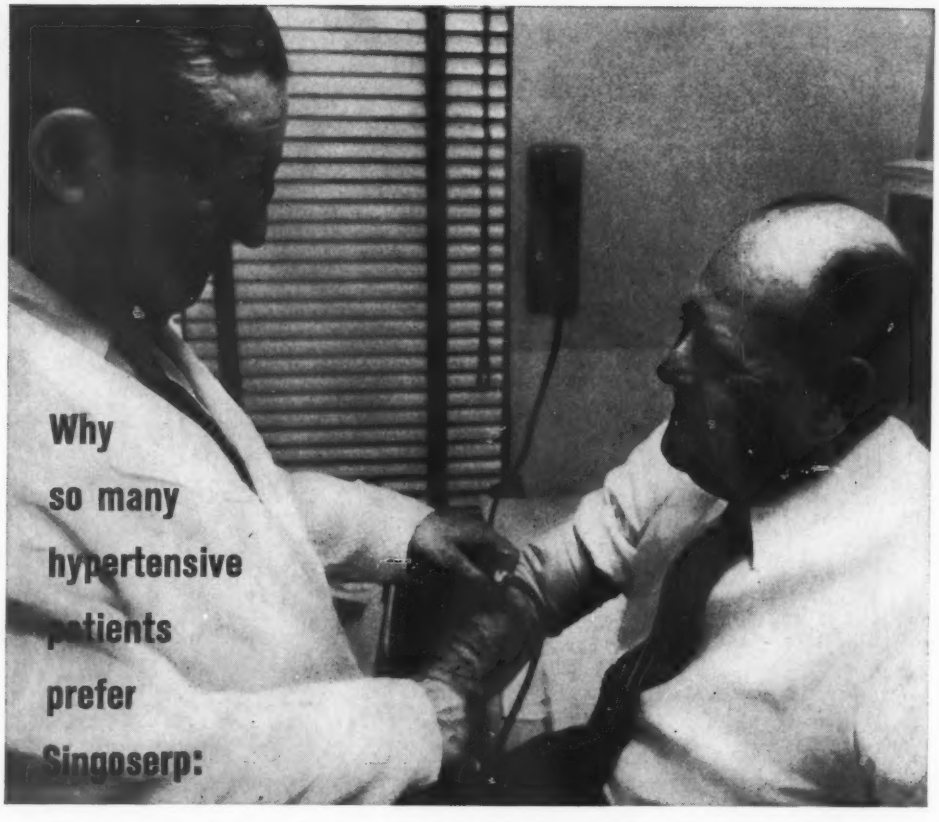


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*Herrmann, G. R., Vogelpohl, E. B., Hejtmancik, M. R., and Wright, J. C.: J.A.M.A. 169:1609 (April 4) 1959.

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